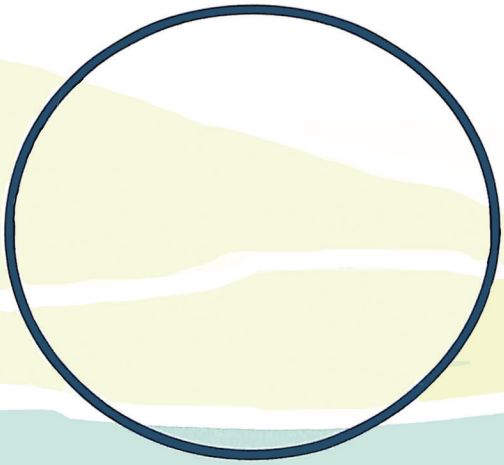

Human Ecology

Issues in the North

VOLUME I

Edited by
Rick Riewe and Jill Oakes

Occasional Publication Series No. 30

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Rick Riewe and Jill Oakes
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Preface

The papers in this collection were presented at the *Human Ecology: Issues in the North* lecture series at the University of Alberta during the Winter semester of 1991. The speakers in this lecture series were invited to participate in these seminars because of the depth of their personal and professional experience and commitment to the North. The speakers included native leaders and practitioners, an artist, government officials, lawyers, a medical doctor/researcher, anthropologists, sociologists, home economists, and a zoologist.

The papers reflect the different perspectives of the speakers, but they all share a dedication to the North and a profound concern for the issues facing Northerners today. Three of the papers deal with traditional native nutrition and its role in the contemporary North. Two of the papers discuss native spirituality — one from an ethnobotany perspective and one from a native artist's perspective. One paper explores the avenues of delivering complex health issues in the North. Three papers examine social problems, with emphasis on child sexual abuse, and discuss the means of dealing with these problems in the communities and the courts. One paper documents the development of government housing programs in the Northwest Territories. Another paper records the dying art of Inuit bird skin clothing. While the last paper documents environmental and social impacts upon the aboriginal peoples of the Soviet Far East.

Acknowledgements

The faculties of Home Economics and Extension, the Canadian Circumpolar Institute, Women's Studies, Canadian Studies, School of Native Studies, Canadian Home Economics Association, and Alberta Home Economics Association are thanked for their support of the Human Ecology: Issues in the North lecture series.

The Canadian Soft Drink Association is gratefully acknowledged for their support of the Canadian Soft Drink Association Distinguished Visiting Lecturer, Martha Greig. This lecture was sponsored by the Canadian Soft Drink Association through the Canadian Home Economics Association.

Nancy Cheyene, Aileen McKinnon and Rick Riewe are thanked for assembling, typing, and editing the manuscripts into one consistent format.

The presenters are thanked for participating in the lecture series. Their contribution from a wide variety of disciplines provided a rich diversity of information. Students, staff, and government officials who attended the lecture series are thanked for their support and interest in the topic area. They helped make this series a success.

Environment, Society and Health Quality of Life Issues in the Contemporary North[1]

Milton M.R. Freeman
Canadian Circumpolar Institute
Department of Anthropology
University of Alberta

Abstract

This paper reviews selected changes affecting northern societies at the present time. By reference to two northern societies, the multiplex effects of outside influences upon these societies is shown to result in diminished local empowerment with great potential for negative health consequences. The socio-cultural significance of maintaining the traditional diet in these northern societies is emphasized.

Introduction

In this paper an ecological approach to the subject matter is adopted and emphasis placed on one relatively neglected area of circumpolar social science and biomedical research — namely the area of diet. However, the approach to diet is less from a nutrition-science perspective, and more from a cultural-ecology perspective. Therefore the stress will be on the place of food-related issues in considering the health status of individuals within northern societies.

By adopting an ecological perspective, there will be less concern with demonstrating causal relationships, which are remarkably difficult to establish in systems as complex as are societies undergoing multiple change. What is to be emphasized here, is the interactive nature of several events taking place in the contemporary north, and the profoundly negative health consequences, for several

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1 Reprinted with permission from *Arctic Medical Research*, Vol. 47: suppl. 1, pp. 54-59, 1988.

circumpolar societies, of certain recent influences originating in urban centers physically and culturally distant from the north.

Changing Social Relationships in Northern Societies

The social relationships that exist in two northern societies will be used to illustrate the larger situation faced by traditional societies throughout the circumpolar regions. Incidently, these circumpolar societies need not be aboriginal in nature, for throughout the northern regions are found tradition-based and often small-sized communities, whose members continue to depend upon local animal and plant resources for their economic, social, emotional, cultural and physical well-being.

However, the examples chosen here are both aboriginal societies, one Alaskan, the other Canadian. Both are Inuit societies, and both are oriented to marine-mammal harvesting. These two examples are, first, the bowhead whale-centered Inupiat occupying the Alaskan North Slope coastal region, and second, the walrus and seal hunting Inuit occupying the N.W. Hudson Bay region. The Alaskan example is selected to illustrate the role of hunting in identity maintenance among these northern societies and the Hudson Bay example to illustrate the consequences of certain recent changes affecting customary social and economic arrangements.

These community relationships, and certain structural and contextual features within which they are situated remain the focus of this paper. Figure 1 represents schematically some of the relationships to be discussed. This model derives much from the 1985 report of the WHO/Nordic Council for Arctic Medical Research Working Group on Problems of Family Health (1). However, the 1985 model has been modified for present purposes.

The starting point however remains the same: the new system of social organization brought into being as a result of societies native to the area coming into sustained contact with newcomers to the region, resulting in mutual cultural influence each exerts upon the other. The results include a variety of innovative social arrangements: e.g., new settlement patterns, new economic, educational, political, administrative and health arrangements. Although the list shown in Figure 1 is not intended to be complete, dietary change is included because diet is one way of approaching the problem of identity maintenance and change, and it is emphasized here both because of its profoundly important role and its neglected status in circumpolar studies.

Identity and Health

These new social systems entrain accompanying cultural changes in behaviour, values and perceptions. Therefore individuals within the societies affected will undergo a change in identity as a consequence of the culture-contact situation. Although each individual in society follows a unique route, this multiplicity is necessarily reduced in Figure 1, where only two separate pathways that may be followed in accomplishing this identity change are shown, one of which involves greater stress loading than does the other. It is often presumed that individuals who have a solid foundation in their traditional culture are better adapted to the

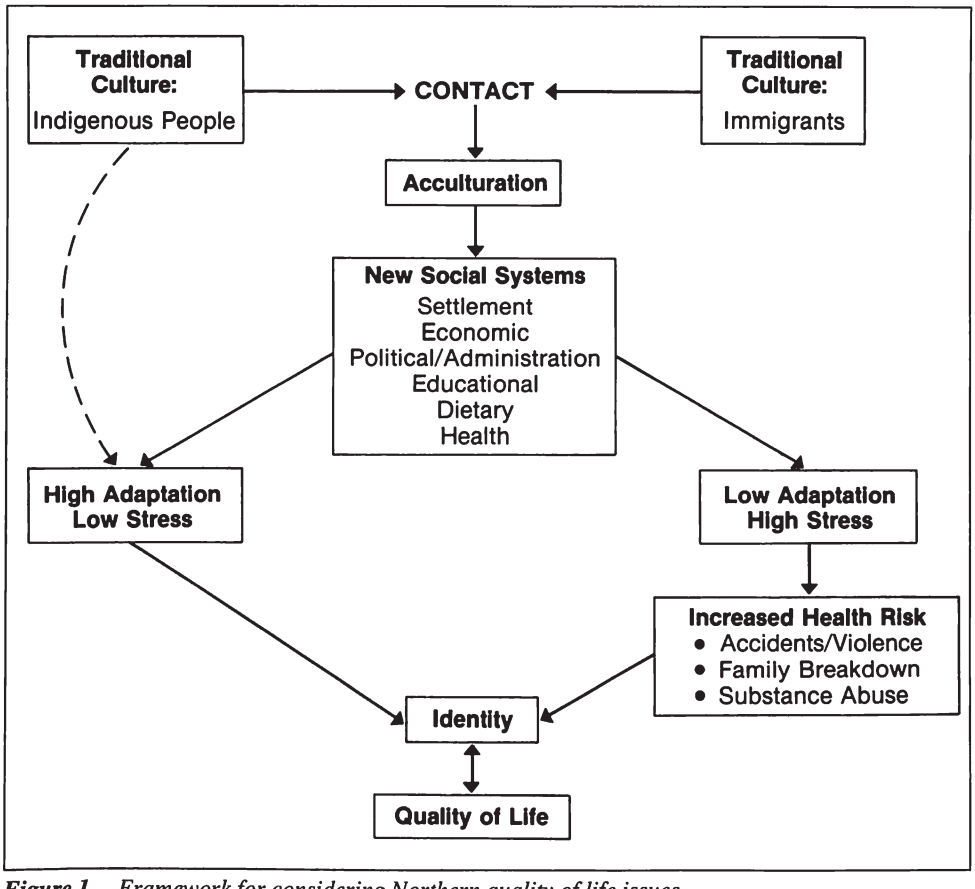

Figure 1. *Framework for considering Northern quality of life issues*

subsequent stresses of life, and that such individuals will make the transition to new social and cultural circumstances with less trauma than will individuals having less well-developed cultural roots. This presumption is indicated on the left hand side of the diagram by the dashed line. From a health-status perspective, it is those individuals and households where low adaptive capability exists that tend to demand attention. In these situations we see reflected in morbidity and mortality statistics an increase in accidents, violence and sickness associated with family breakdown, substance abuse and other manifestations of poor social adjustment.

The quality of life an individual enjoys is very dependent upon the self-image that person possesses, in other words, upon their sense of identity. A positive self-image results more often than not in the perception that life is good, and that the effort required to improve one's well-being is both worthwhile and likely to be successful. It follows from what has been said that social and cultural change is not

in itself identity-threatening, but rather the manner and context in which change takes place is of the utmost importance.

Loss of Local Control and Other Changes

The two examples that follow further illustrate this point. The first is centered upon a particular Inuit community living in N.W. Hudson Bay and numbering about 500 at the present time. This population moved to their island location in the early years of this century to take advantage of excellent fox-trapping opportunities. The island and surrounding inshore waters abound with wildlife, including such marine mammals as polar bear, walrus, and various whales and seals. The fur-trading economy, involving the barter of animal skins and ivory for trade goods, was therefore strong and remained based upon harvesting local resources until about twenty years ago when a cash economy became established following the introduction of wage employment and government transfer payments.

When the economy was based upon fur-trading, arctic fox furs remained the principal item of currency. To be a successful trapper required, among other attributes, having a large dog team to regularly service a long trapline. Thus the best trappers depended upon supplies of good quality dog food, which in the local context was supplied by walrus meat. To efficiently and safely harvest walrus required large wooden boats (2).

The owners of large boats were, traditionally, important men in Inuit society, occupying positions of authority over more than their immediate families. This traditional basis of status and influence remained in place among the Southampton Island Inuit, even though the technology had changed with imported boats, various trade goods, intensive fox trapping and new religions being adopted over the preceding fifty years or more. It should be noted that important community institutions in the economic and political spheres of activity were largely determined within the local community, and that "outside" influences appear quite insignificant (Figure 2).

Toward the end of the 1960s the situation abruptly changed as a result of new government policies accelerating and accentuating the introduction of new housing, education, health care, local government and a cash-based economy as mentioned earlier. The new economic order facilitated a change from the use of dog teams for harvesting local resources (that continued to provide the preferred foodstuffs), to the use of motorized toboggans that allow part-time hunting and trapping to be continued whilst engaging in casual wage employment. Thus, dog teams were used less and the large boats formerly used for walrus hunting were no longer a necessity; as a result of this and other changes underway in the community the status system traditionally based upon boat ownership and crew maintenance was replaced by new systems of ranking (3). Figure 3 illustrates some of these changes, especially the new bases of establishing social status and leadership, economic well-being and, perhaps most important, the extent to which local community integrity and control ceased to depend upon decision making largely situated inside the community. Under these changed circumstances, decision making, in respect to important

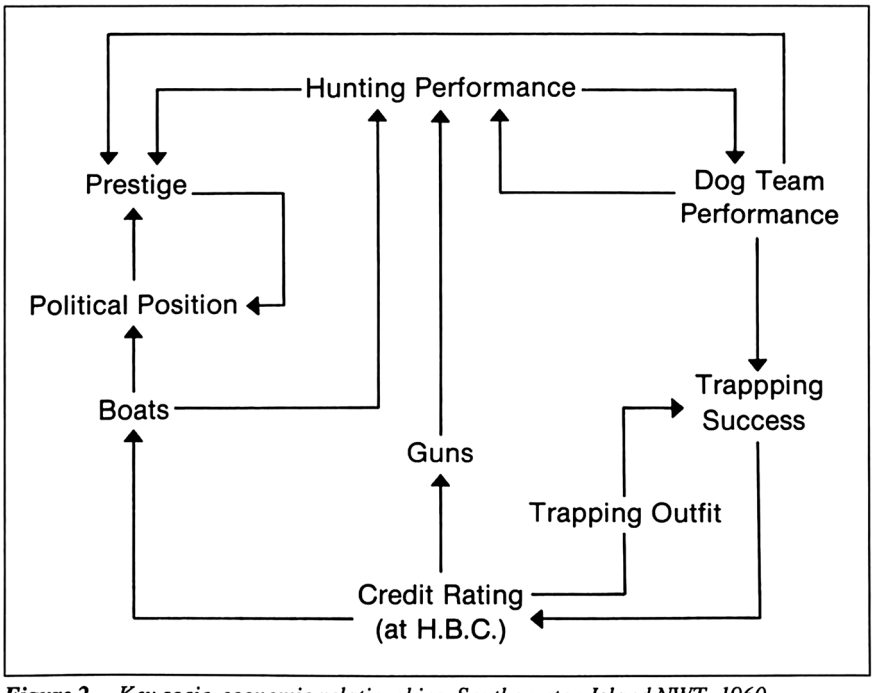

Figure 2. *Key socio-economic relationships, Southampton Island NWT, 1960.*

family and community outcomes, becomes centered outside of the community at a distant center of government which remains for all practical purposes removed from the direct orbit of community influence and concern. The negative health consequences of such loss of local control have been recognized elsewhere (1).

Hunting, Diet and Social Continuity

My next example is based upon the contemporary Alaskan North Slope Inupiat situation. This society, though profoundly influenced by nineteenth-century American commercial whaling activities, retains centuries-old traditional roots as a bowhead whale-hunting society, utilizing a whaling technology that today is a blend of traditional skin-covered boats, nineteenth-century Yankee whaling implements and up-to-date motors and radios. Figure 4 illustrates the relationship between hunting — again as a central or basic organizational feature of the community — and identity in this strongly tradition-based northern society (4). It is important to note the many important aspects of social life that depend for their rationale and maintenance on continued whale-hunting among these "people of the whale" (5).

The importance of customary food in these northern societies is undisputed, for not only the local resources economical to obtain (in areas where the cost of living is high) but locally available foodstuffs are nutritionally far superior to

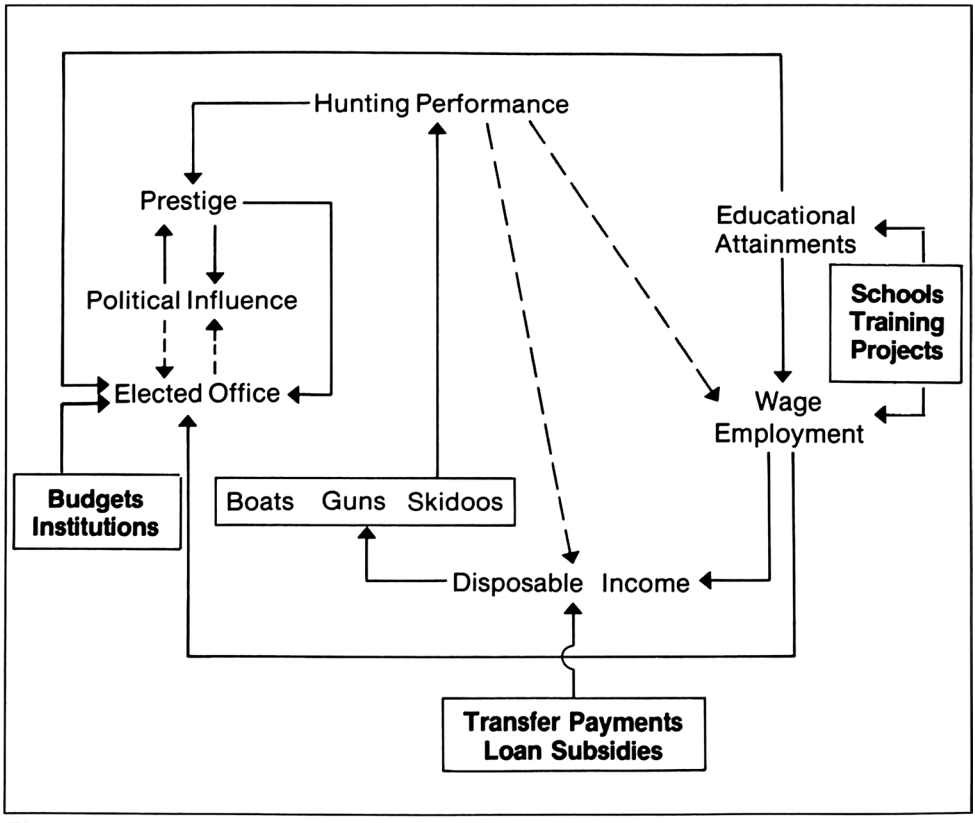

Figure 3. *Changed socio-economic relationships, Southampton Island NWT, 1970*

imported items (6,7). However, it is not food in and of itself in a nutritional sense that is wholly important; from the cultural ecological perspective followed here, an added concern is also with foodways and cuisine (8). Foodways involve not just the consumption of appropriate foods, but also the socially and culturally important ways of obtaining and distributing (i.e. sharing) valued foodstuffs, and also the culturally and psychologically satisfying ways of preparing and consuming the traditional cuisine. These varied aspects together serve significant familial and societal ends, for as various authorities have noted, the breakdown of cultural and intergenerational continuities in these rapidly changing communities seriously threatens social cohesion and well-being in these northern towns and villages (9,10).

There are important reasons to stress the cultural, emotional and aesthetic values of customary food, and these relate more especially to the maintenance of good mental health status. Ever since Bremer's classic study (11) of a fishing village in northeastern Norway, numerous reports have confirmed the high incidence of

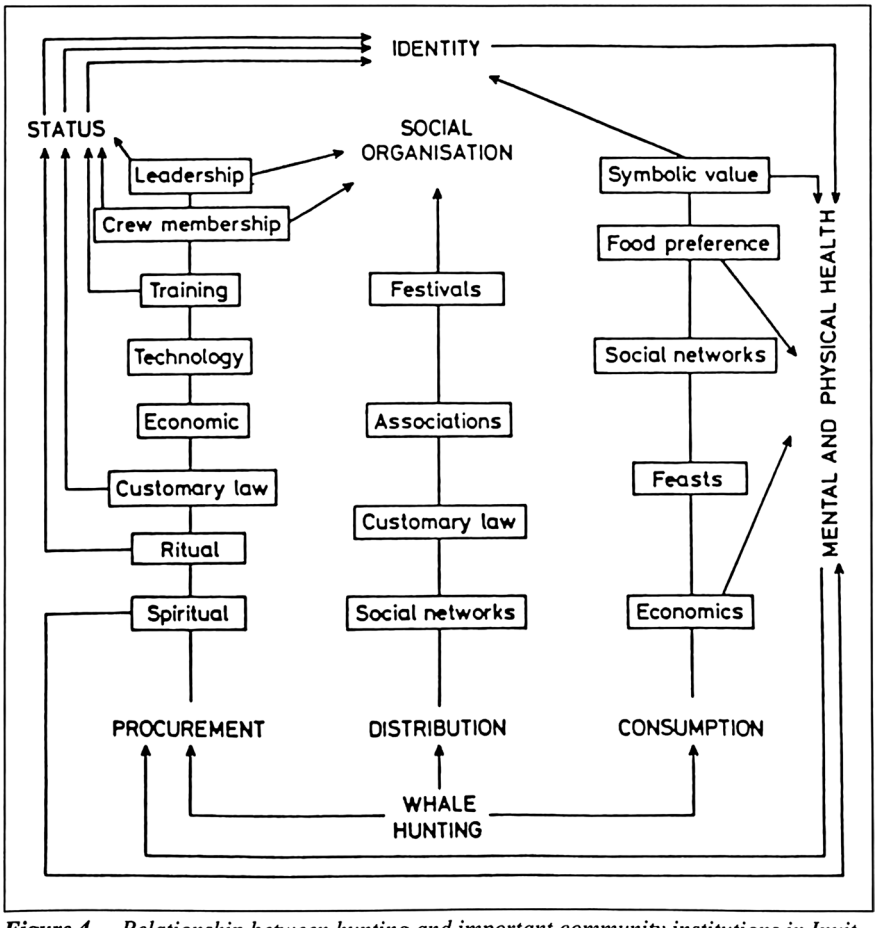

Figure 4. *Relationship between hunting and important community institutions in Inuit whaling societies.*

clinically-defined mental illness in seemingly healthy populations; rates of incidence of around 20 percent are normally reported. Some studies have suggested that there are no differences in overall mental illness prevalence rates between northern and southern populations in circumpolar countries (12); however, rates are known to vary considerably within the north (13). To explain that variability, some authorities have suggested that the larger administrative or industrial centers in the north induce significantly greater mental health problems than do the outlying villages maintaining a more traditional lifestyle (14). Some authorities link the more extreme manifestations of mental sickness directly to loss of cultural (15,16) or social support systems (17,18). If this is the case, then certainly the household and community-based systems of procuring, distributing and consuming local

foods in a traditionally co-operative manner have decidedly positive attributes for maintaining these desired support systems.

The Importance of a Healthy Environment and Loss of Access to Resources

The importance of maintaining a healthy environment, one that will continue to allow sustainable utilization of species important for dietary, social, economic and cultural reasons, is well recognized throughout the north. So-called "land-claims" settlements, particularly prevalent in northern North America, indicate the considerable effort that native societies are prepared to expend to safeguard these vital resources (19). The bowhead-whaling Inupiat societies on the Alaskan North Slope, in addition to attending successions of meetings to explain their whaling culture to outsiders, have expended about $1M. in each of the past ten years in support of an internationally-accepted bowhead whale management plan, which involves funding basic research on the biology of the bowhead whale, whale population-censusing activities, hunter training, public educational and political lobbying efforts (20). For similar reasons, when national and multinational energy corporation proposed the transportation of liquefied natural gas from the Canadian arctic by ice-strengthened supertankers, the Inuit of Canada and Greenland successfully opposed this plan on the basis of the unacceptable environmental stress to be placed upon marine mammal stocks along the proposed shipping route (4).

The threat to northern societies caused by loss of access to local subsistence resources comes not only from industrial development in the north; whale and seal hunting are cases in point, as the threatened loss of access to these vital resources is due largely to "animal-rights groups" concerns voiced in metropolitan centers located outside of the north.

Protecting marine mammals from human exploitation has become a growth industry in which rationality, including scientific objectivity, plays only a very minor role. It has proven easy to inflame public passions in support of campaigns to boycott trade in marine mammal products, and as a consequence to obtain the support of politicians whose constituents no longer consume seal and whalemeat. However, in northern regions, marine mammals constitute a major component of marine ecosystems. Thus it follows that coastal societies in these northern regions necessarily will have developed socio-economic, cultural, nutritional and psychological dependencies upon seals and whales as a valued food source. At the present time coastal societies in Alaska, Canada, the Faroe Islands, Greenland, Iceland, Northern Japan and Norway are having their economy, their heritage, their independence and their health seriously imperilled because of well-meaning and effective, even if totally misleading, campaigns being promoted by animal-protection groups opposing the utilization of certain marine species. Some responsible environmental organizations, such as the International Union for the Conservation of Nature (IUCN), the World Wildlife Fund (WWF), and the Food and Agriculture Organization (FAO) reject such uncritical and dangerous non-use advocacy, and together with the United Nations Environment Programme (UNEP) urge a sustain-

able utilization approach which recognizes conservation interests, human needs, social justice and equity. At a UNESCO-sponsored conference on Arctic Science Policy and Development held in Fairbanks, Alaska in 1985, a resolution urged northern scientists to use their knowledge and professional status to oppose animal-rights groups' misinformation programmes that serve to dangerously undermine the legitimate and rationally-managed resource harvesting activities of northern hunting and fishing societies. It is my hope that colleagues attending the 7th International Congress on Circumpolar Health, will feel similarly inclined to inform themselves of these issues and be prepared to speak out in support of the needs and best interest of the northern societies they are dedicated to understanding and serving.

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Nutrient Intakes of Native Canadians Near Wood Buffalo National Park[1]

Eleanor E. Wein, Jean H. Sabry and Frederick T. Evers
Canadian Circumpolar Institute
University of Alberta
Division of Applied Human Nutrition and
Department of Sociology and Anthropology
University of Guelph

Abstract

Dietary intakes of 178 native Canadians (Indians and Metis) in three age groups (13-24, 25-29, and 50-86 years) living near Wood Buffalo National Park in northern Canada were examined over two seasons (fall and spring). Mean nutrient intakes (not including vitamin supplements) met Canadian recommended levels except for calcium by all groups, vitamin A and folate by middle and older adults, and iron by middle adult females. The probability of inadequate intake was greatest for calcium, vitamin A and folate, followed by vitamin D, vitamin C for men and iron for women. Fat provided 35-38% energy. Dietary fiber intakes were low. More frequent use of country foods (wild game, birds, fish and berries) was associated with higher intakes per 1000 kcal of protein, iron, phosphorus, riboflavin and niacin and lower intakes of fat and calcium. The results support the desirability of increased consumption of traditional and store foods which provide calcium, vitamin A and folate, and the wisdom of encouraging the use of country foods by this population.

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1 Reprinted with permission from *Nutrition Research* 11:5-13, 1991.

Introduction

Very few studies have examined nutrient intakes of native Canadian Indians living in remote or northern regions (1), and the Nutrition Canada survey (2,3) did not distinguish between nutrient intakes of southern Indians who generally live closer to urban centres and those of northern Indians who generally live in remote areas where they still have access to country foods (traditional native foods obtained from the land, such as wild game meats, birds, fish and berries). The increased availability and variety of store-bought foods in northern communities in recent decades, however, suggests that food consumption patterns are changing toward greater reliance on store-bought food.

Based on the nutritive value of country foods relative to that of foods available in northern stores, health authorities have recommended increased consumption of country foods as a means of improving nutritional health of native Canadians living in the Northwest Territories (NWT) (4). The purpose of the study was to assess the nutrient intakes of native Canadians in two communities in northern Canada. Nutrient intakes of three age groups were examined. The quality of diet, as measured by nutrient density, of frequent versus infrequent users of country foods was compared.

The study was carried out in Fort Smith and Fort Chipewyan, communities located in the vicinity of Wood Buffalo National Park. This large park (44,000 sq km) situated on the border of Alberta and the Northwest Territories, supports many wildlife species, such as bison, moose, hare, beaver, muskrat, waterfowl, upland birds and fish. Native people traditionally hunted, trapped and fished in this region and still have certain hunting and trapping rights in the Park. Wildlife in areas adjacent to the Park is also utilized. Thus it is a region where native people still have access to country foods (5). Store-bought food, however, comprises the larger part of the diet of most households.

The study participants were Cree and Chipewyan Indians and Metis of Cree and Chipewyan descent. The Metis include persons who have lost their official status as Indians, usually through marriage, as well as persons of mixed Indian and white ancestry. Both Indians and Metis consider themselves native Canadians with aboriginal rights and were included in the study. The communities (populations 2,300 and 1,200) are comprised of 18% and 58% status Indians, 26% and 34 % Metis, and 56% and 8% other (6,7).

Methods

The project was discussed with native leaders in each community and their approval and co-operation were obtained. The research protocol was approved by the Human Ethics Committee, University of Guelph.

Sample

One hundred and twenty households participated in the first phase of the study, an examination of country food use at the household level (5). Households were selected from Indian band lists and Metis membership. In order to obtain enough

teenage participants for intergenerational comparisons, additional households with teenagers were identified through the school. One hundred and seventy-eight individuals over 12 years of age in participating households consented to take part in the study of individual nutrient intakes. The characteristics of the sample were as follows: Indians 58%, Metis 42%; females 60%, males 40%; adolescents and young adults (13-24 years of age) 39%; middle adults (25-49 years of age) 36%; and older adults (50-86 years of age) 25%. Approximately 25% of native households and 10% of the native population of all ages in the region took part in the study. The two communities were about equally represented on ethnicity and gender. Their representation on age distribution differed slightly but not sufficiently to warrant treating the two communities differently.

Dietary Methods

Estimates of individual food consumption were obtained by repeated 24-hour recalls, two in fall-early winter (late August to mid-November, 1986) and two in spring-summer (late April to mid-July, 1987). Within one season, repeated recalls were taken several days apart, on different days of the week. Within each age and sex group, all seven days of the week were represented. All interviews were conducted by the same researcher (EW) in the respondents' homes, except for the adolescents who were more readily located in school. A native interpreter assisted non-English-speaking participants. Plastic foods replicas, two dimensional graduated food models (diagrams of circles, wedges, squares and rectangles), and household measures were used to aid respondents in description of portion size.

Daily and mean intakes of energy and selected nutrients were calculated by a nutrient intake system which used food composition data from the 1987 condensed Canadian Nutrient File (8). Vitamin D values were based on fortification levels of margarine, pasteurized milk and evaporated milk and for other foods on the British tables of food composition (9). Nutrient values for several country foods were added to the system from Health and Welfare Canada (10) and from Deethardt (11). Differences in mean nutrient intakes and in intakes per 1000 kcal between fall and spring and between recalls within season (sequence effect) were examined first by multivariate analysis of variance designed to test simultaneously differences among groups on multiple dependent variables (12). All statistical analyses used the computer programs of Statistical Package for the Social Sciences (13). Since multiple analysis of variance showed no significant difference in nutrient intakes due to season ($p=0.14$) nor due to sequence ($p=0.38$), the four day mean nutrient intake per individual was used for all subsequent analyses.

Mean energy and nutrient intakes were calculated for males and females in three age groups. The risk of inadequate intakes was estimated by the probability method (14, 15) using the computer program by Beaton (15).

Nutrient density was used to assess dietary quality across age and sex groups in order to control for differences in energy intake (16). The density of nutrients per 1000 kcal in diets of frequent versus infrequent users of country foods was compared. Persons who consumed country food on three or more occasions in the

four dietary recalls were classified as frequent users; those who consumed country food not at all or only once in the four recalls were classified as infrequent users. These groups represented the approximate upper and lower thirds of the distribution. Differences in the mean densities of 14 nutrients were examined by three-way analysis of variance, controlling for differences due to age and sex.

Results

Mean intakes per day (Table 1) of most nutrients were highest among adolescents and young adults and lowest among the older adults. Mean intakes met the Canadian recommended levels (17) with the exception of calcium by all age and sex categories, of iron by middle adult females, and of folate and vitamin A by middle and older adults. Use of vitamin supplements, generally multivitamin products, was reported by 28% of participants with a somewhat higher use by females than males. Nutrients from supplements are not included in the nutrient intake data reported here.

The mean percent energy from protein (Table 1) was higher with higher age category while that from carbohydrate was less. The percent energy from fat showed little difference between age categories and was somewhat lower for females than males. For the 21 subjects (16 men and 5 women) who reported consumption of alcoholic beverages, the mean alcohol intake was 20 + 21 g per day and provided 4.4 + 3.5% of dietary energy.

As shown in Table 2, the likelihood of inadequate intakes was highest, in all age groups, for calcium, vitamin A and folate, followed by vitamin D and iron for women and vitamin C for men.

Diets of persons who consumed country foods frequently, in comparison to infrequent users, contained per 1000 kcals, higher levels of protein, iron, riboflavin, and niacin and lower levels of fat and calcium (Table 3).

Discussion

The purpose of using four repeated 24-hour diet recalls was to obtain a close approximation of the individual's usual diet than a single 24-hour recall would permit. The four recalls were purposely scheduled over two seasons so as to include seasonal variation in this approximation of the individual's usual diet. The two seasons in which data were collected represented the extremes of country food availability (5), namely fall when the major hunting period is in progress, and spring, when hunting is limited and stores of frozen country meat and berries are low. Given this research design and the fact that multiple analysis of variance showed no difference in nutrient intakes due to season, it can be supposed that the mean daily nutrient data are reasonably representative of the usual nutrient intake profile of these individuals.

In this study, the probability approach was used to assess dietary adequacy. Probability analysis provides a more realistic estimate of the proportion of individuals at risk of not meeting their nutrient requirements than does simple comparison of group means to recommended levels, since the probability approach

TABLE 1
MEAN ENERGY AND NUTRIENT INTAKES+

Mean Intakes SD

Nutrient	Adolescents and Young Adults		Middle Adults		Older Adults	
	Males (n=27)	Females (n=42)	Male (n=26)	Females (n=38)	Males (n=18)	Females (n=27)
Energy, Kcal	3121 ± 879	2235 ± 665	2871 ± 810	1654 ± 465	2259 ± 880	1469 ± 489
Energy, MJ	13.4 ± 3.7	9.7 ± 2.7	12.4 ± 3.6	7.1 ± 2.0	9.7 ± 3.6	6.2 ± 2.1
Protein, g	109 ± 29	72 ± 23	116 ± 35	69 ± 23	97 ± 42	64 ± 23
% kcal#	14	13	16	17	18	18
Fat, g	133 ± 42	88 ± 29	123 ± 43	71 ± 23	95 ± 43	58 ± 24
% kcal#	38	35	38	38	38	35
Carbohydrate, g	387 ± 114	303 ± 104	331 ± 105	188 ± 57	257 ± 108	179 ± 62
% kcal#	50	54	46	46	46	49
Dietary fibre, g	21 ± 7	15 ± 5	19 ± 9	12 ± 3	14 ± 7	11 ± 4
Calcium, mg	774 ± 268	608 ± 292	689 ± 269	471 ± 172	491 ± 191	488 ± 210
Iron, mg	19.4 ± 5.7	13.4 ± 3.9	20.0 ± 6.3	11.6 ± 3.4	16.0 ± 6.0	10.6 ± 3.8
Phosphorus, mg	2145 ± 855	1724 ± 618	1629 ± 520	1169 ± 351	1323 ± 496	946 ± 313
Vitamin C, mg	139 ± 74	148 ± 87	90 ± 52	83 ± 48	71 ± 42	78 ± 36
Thiamin, mg/ 100 kcal	0.6 ± 0.2	0.6 ± 0.2	0.6 ± 0.2	0.7 ± 0.2	0.8 ± 0.3	0.8 ± 0.2
Riboflavin, mg/ per 1000 kcal	0.7 ± 0.2	0.6 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	0.8 ± 0.3	1.0 ± 0.4
Niacin, NE per 1000 kcal	15.5 ± 2.6	14.0 ± 2.9	17.6 ± 4.0	18.3 ± 3.7	18.7 ± 4.6	19.3 ± 6.9
Folate, μg	212 ± 70	159 ± 61	202 ± 76	122 ± 40	153 ± 62	120 ± 38
Vitamin A, RE	1020 ± 804	911 ± 1032	931 ± 416	561 ± 258	723 ± 414	610 ± 245
Vitamin D, μg	5.7 ± 3.5	3.4 ± 2.2	4.9 ± 3.2	2.9 ± 1.7	4.2 ± 3.4	3.7 ± 2.0

+ Not including vitamin supplements.
# Percentage of energy.

TABLE 2
PROBABILITY ESTIMATE OF INADEQUATE NUTRIENT INTAKES

Nutrient	Probability of Inadequacy* (%)					
	Entire Sample (n=178)	Adolescents/ Young Adults (n=69)	Middle Adults (n=64)	Older Adults (n=45)	Male (n=71)	Female (n=107)
Calcium	59	52	57	75	52	65
Vitamin A	49	42	50	59	45	52
Folate	44	25	52	64	36	50
Vitamin D	20	23	20	17	9	28
Vitamin C	12	4	16	19	18	8
Iron	8	9	10	3	0	13
Riboflavin	6	3	7	8	1	9
Thiamin	4	1	7	7	2	6
Protein	4	2	4	6	2	5
Niacin	0	0	0	0	0	0

*Estimated by the procedure of Beaton (15).

assesses each subject individually in relation to the distribution of requirements for his/her appropriate age and sex category used in the Recommended Nutrient Intakes for Canadians (14, 15, 17). The coefficient of variation of the requirement for many nutrients is assumed to be 15% (17). Dietary data alone do not indicate nutritional status. Confirmation of dietary findings by biochemical and clinical measures is necessary to establish whether actual nutritional deficiencies exist.

The absence of seasonal differences in nutrient intakes indicates a relative constancy in the supply of nutrients in spite of seasonal differences in food consumption patterns due to food availability (5). There were a few home gardens from which fresh vegetables would be available in late summer and early fall. The price of store-bought fruits and vegetables is generally lower in the fall than in the spring. Fall is the major hunting season and country foods are consumed more often in the fall and winter than in other seasons. The period of use is extended, however, by freezer storage, cold weather storage, and some drying and smoking of meat and fish (5).

In general, intakes of energy and nutrients were higher and percent energy from fat lower than reported by the Nutrition Canada survey of 1970-72 (2,3). Unfortunately, it is not possible to draw conclusions concerning change in dietary levels of northern Indians since Nutrition Canada data were not reported separately for this region.

The lower percent energy from protein in the diets of adolescents and young adults compared to middle and older adults, and the concomitant higher percent energy from carbohydrate, reflect generational differences in food patterns. Young

TABLE 3
DENSITY OF NUTRIENTS IN DIETS OF FREQUEN vs INFREQUENT USERS OF COUNTRY FOODS

Nutrient per 1000 kcal	Frequent Users+ (n=61)	Infrequent Users # (n=75)	Significance++
Protein, g	46	34	**
Fat, g	39	42	**
Carbohydrate,g	119	124	NS
Dietary fibre, g	7	7	NS
Calcium, mg	262	290	*
Iron, mg	7.2	6.3	**
Phosphorus, mg	701	673	**
Vitamin C, mg	46	53	NS
Thiamin, mg	0.64	0.64	NS
Riboflavin, mg	0.85	0.68	**
Niacin, NE	19.0	15.0	**
Folate, μg	73	73	NS
Vitamin A, RE	382	364	NS
Vitamin D, μg	1.9	1.8	*

+Consumed country food on three or more occasions during the four days of diet recall.
#Consumed county food once or not at all during the four days of diet recall.
++Three-way ANOVA, main effect of frequency only, controlling for age and sex. F-test, NS not significant, *($p<0.05$), **($p<0.01$).

people consumed more milk, more fruit, more vegetables and greater amounts of sweet foods including soft drinks, than did their elders (18). These generational differences in food consumption are reflected also in the higher mean intakes of calcium, vitamin A and vitamin C by adolescents and young adults. Dietary fibre intakes were low in comparison to intakes of other Canadians (19).

The number of participants who reported consuming alcoholic beverages was too small to allow generalization. It is interesting, however, that the mean energy intake from alcohol was similar to that reported for Indian men in the Nutrition Canada survey (3). It is likely that the consumption of alcohol was under reported. The problem of selective under reporting of alcoholic beverages in dietary surveys has been recognized in the literature (15).

Calcium intakes were low in relation to recommended intakes, especially among middle adult women and older women and men. The proportion of women with inadequate calcium intakes is higher than that reported for Indian women in northern Manitoba (1) and the west coast Nuxalk (20). The low calcium intake reflects the low consumption of milk (18). Native people traditionally obtained some calcium from broths in which meats, birds, and fish were simmered and from dried fish. Although traditional soups and dried whitefish are still consumed today, the quantity and frequency is low. The high proportion of phosphorus relative to

calcium is similar to findings for west coast Indian women (20). Combined with low calcium intakes, the low Ca:P ratio is a concern for its possible detrimental effect on bone density in diets with liberal intakes of animal protein. In Inuit populations, high protein (200 g/d), high phosphorus and low calcium intakes have been associated with diminished bone density (21). We are unaware, however, of any similar studies on bone density on northern Indians.

Although mean intakes of vitamin D are above recommended levels, the probability of inadequate intake was 20%. This estimation does not include vitamin D formed on exposure to sunlight, an amount which is likely of considerable importance, since May through August are typically hot dry months, when light weight summer clothing is worn.

The likelihood of inadequate intake of iron for women in our study was the same as that reported for northern Manitoba Indian women (1). The high consumption of meat, poultry and fish in our study (mean intake 160 g/d by women, 260 g/d by men) (18), together with relatively high intakes of vitamin C and low intakes of fibre, suggest that iron in the diet is likely to be well absorbed (22). Calculation of dietary inadequacy based on the bioavailability of iron in an average Canadian diet may overestimate somewhat the likelihood of inadequacy in this population.

The high probability of inadequate intakes of vitamin A and folate is similar to findings for other Indian groups (1, 20). Data on calculated dietary intakes of vitamin A and folate should be interpreted with caution because the analytical methodologies used to obtain food values should be interpreted with caution because the analytical methodologies used to obtain food values for these nutrients are considered inadequate (15). With vitamin A the limitation is in analysis of the provitamin carotenes which are obtained from plant foods. Plant foods provided 30% of the total calculated dietary vitamin A in the present study. A report on food sources of folate in the United States based on the most current food folate data showed that orange juice made the greatest contribution, 9.7%, to dietary folate intake (23). Vitamin C-fortified orange flavoured drinks and crystals which do not contain folate were commonly used by study participants. Similar observations have previously been made with respect to folate intake in the NWT (4).

The greater density per unit energy of protein, iron, phosphorus, riboflavin and niacin and the lower density of fat in diets of frequent than infrequent users of country foods reflects the leanness of the country meats relative to the store-bought foods used by native people (8). For example, cooked caribou and moose contain 2-3% fat, whereas store-bought meats commonly used by this population, i.e., ground beef, pork chops, luncheon meat and weiners, have fat contents in the range of 20-30% (8). The lower calcium intake reflects the lower consumption of dairy products among individuals consuming country foods frequently, perhaps indicative of closer adherence to traditional food habits.

Conclusions

Among native Canadians in this study in the Wood Buffalo National Park area calculated nutrient intakes indicate that about 50% may not be meeting their needs for calcium, vitamin A and folate. The probability of dietary inadequacy is highest among middle adults and lowest among younger adults, it is higher among males than females. Confirmation of the dietary findings by biochemical and clinical measures is necessary to establish whether actual deficiencies exist.

The percentage of dietary energy from fat is lower among young women and older women, but higher than recommended among all age groups.

Frequent users of country foods have better quality diets than do infrequent users of country foods, in that the former have higher densities, per unit of energy, of protein, iron, riboflavin, and niacin and a lower density of fat. The lower density of calcium in diets of frequent users of country foods, however, is undesirable, since calcium is a nutrient in short supply in diets of this region.

Country foods are good sources of many nutrients and relatively low in fat. Their frequent use results in better quality diets with respect to some nutrients. In addition to their nutrient contribution, their cultural meaning as a traditional food has important implications for this population.

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Use of Wild Plants for Food and Medicine by Northern Natives

David E. Young and Elizabeth Olsen
Department of Anthropology
University of Alberta

Introduction

It is important to preserve wild habitats so that native people can continue to benefit from the use of wild plants for food and medicine. Plant lore surrounding the identification, harvesting, preparation and application of plants, and the number of natives employing this traditional knowledge on a regular basis, has diminished since contact with colonial European society. Not surprisingly, the level of health and well-being experienced by native people has also declined. We should not assume, however, that traditional knowledge has disappeared or that its disappearance is inevitable. There are many signs which indicate a revived interest in (and persistence of) native traditions, including plant use.

Part I: The Use of Wild Plants for Food

Traditional Native Diet and its Nutritional Value

Diet, as indicated by Milton Freeman in another paper in this volume, is part of a larger ecological framework including culture, environment, society and health. People develop deep attachments to the foods they procure, share and consume; food is integrally linked to cultural and personal identity. The cultural and symbolic value of food, then, may be more significant for health than the actual nutritional value of that food. Nevertheless, the nutritional content of native foods is an important issue to discuss when dealing with native diet, particularly where nutritious wild foods have been replaced by highly-processed and sugary commercial foods, a change which has been linked to a number of dietary diseases.

The addition of nutrients alone, through dietary supplements, for instance, would not necessarily resolve all nutritionally-related diseases. To claim that nutrients alone will improve health is to ignore the effects of genetics, the environment and psychology, for instance, which also influence illness and health. The

multidimensionality of illness and health is well illustrated by an ecological model. But, the inclusion of foods which are nutritious as well as culturally meaningful, inexpensive and locally available could have very positive health effects for native people.

Biochemical analyses have shown that indigenous food substances are often more nutritionally complete than industrially-produced or marketed food substances (Messer 1984: 233; Berkes and Farkas 1978). The traditional native diet which preceded the introduction of foods obtained through the fur trade was said to have provided nutrients and calories which were adequate in "all known respects," although the intake of certain nutrients may have varied seasonally (Berkes and Farkas 1978:156). This diet consisted of plants, meat, fish and fat.

Although meat and other animal products traditionally played a dominant role in the northern native diet and are the foods most commonly mentioned in discussions of this diet, berries, greens, bark and tubers were also used and provided essential vitamins, minerals and carbohydrates. These would have helped to prevent the most common illnesses. Plants brewed and steeped for tea also would have provided significant vitamins and minerals. Since teas are mainly classified as medicine instead of food by native people, they are often overlooked in dietary surveys. This may result in underestimations of the quantity and variety of plant species with 'food' value consumed by northern natives.

Otto Schaeffer (1977:19) says, in fact, that "most nutritionists and early explorers discussing nutrition in traditional Inuit society overlook or belittle vegetable matter consumed by them". Schaeffer and Steckle (1980:8) report that, despite a short growing season, vegetable resources in the north, including herbs, roots, plant saps and berries, were essential sources of vitamins, minerals and carbohydrates. Many plant products were dried and stored for use throughout the year. Berkes and Farkas also attest to the importance of plant materials as a vitamin and mineral source in their reference to the Eastern James Bay Cree. They argue that northern bush food is generally superior to southern. For instance, ascorbic acid levels of many edible plants rise the farther north one goes (1978: 168). This suggests that even small quantities of plant foods in the diet would have been nutritionally significant.

Berries, fern roots, lilybulbs, mushrooms, wild onions, wild rhubarb, rosehips and a turnip-like root (probably Indian breadroot) are plant foods reportedly used by the Dene of the Northwest Territories. As well, birch sap was used as a sweetener and spruce gum was chewed (Kehoe 1981:489-90). Cattails, bullrushes, wild onion, the inner bark of juniper, nettles and seneca root are plants indigenous to northern Canada also used as food by native people (Anderson 1982).

Disruption by the Fur Trade and the Subsequent Rise in Nutritionally-related Diseases

Contact with European society interrupted the process of enculteration whereby knowledge of plant use was passed on from generation to generation. Today, northern native people continue to rely heavily on meat (though not always wild

meat), but usually supplement it with starchy root crops and highly-processed foods rather than with wild plants.

Berkes and Farkas note how quickly the first trade goods were incorporated into native diet, many of which are now considered traditional foods. Flour, baking powder and sugar became popular as lightweight and concentrated sources of food energy (1978:156) despite their lower nutritional value. Highly-sweetened black tea was also readily incorporated into the diet and might have replaced traditional, vitamin-rich herbal teas, just as lard (saturated fat) is reputed to have replaced nutritious and highly unsaturated wild game, bird and marine fats (Schaeffer and Steckle 1980:7).

The inclusion of imported foods in the diet coincides with a rise in nutritionally-related diseases among native people, notably diabetes mellitus, dental caries, obesity, acne and gall bladder disorders (cf. Szathmary, et al. 1987; Young 1988; Freeman 1988b; Schaeffer 1977; Schaeffer and Steckle 1980). Though the traditional diet was not foolproof for providing all required nutrients (calcium levels, for example, may have been too low), the recent rise in chronic and nutritionally-related diseases among native peoples points to the nutritional superiority of a traditional, over a modern, diet.

The Dogrib Indians of the Northwest Territories are a population currently undergoing dietary transition (Szathmary, et al. 1987). Their traditional food base is still stable, and diabetes is not yet a health problem in the community. The researchers believe that modern foods represent additions to the traditional food base and predict that the addition of more non-traditional foods may have a role to play in the development of diabetes. Dietary change, therefore, is interpreted as a function of the change in quantity and not necessarily quality of the foods eaten. Younger individuals were found to consume the greatest amount of non-traditional foods (Szathmary, et al. 1987: 801).

Generational differences in food use and nutritional status were identified in the Wood Buffalo National Park region. Older individuals were found to rely more heavily on country food in their diets and display fewer nutritional deficiencies (Wein 1989). The difference in dental health status between young native people and their elders also attests to the poor quality of a modern diet high in sugar and processed foods.

The decline in nutritional health with the adoption of imported foods is not surprising. Store foods available to northerners are expensive and rarely fresh. Fresh produce is often in poor, unappetizing condition when it is available. Some individuals are without access to wild meats and often cannot afford imported meats such as beef. Instead, they buy what they can afford: processed meats and packaged, starchy foods. According to Berkes and Farkas (1978), a trapper's meal, which might consist of bannock, highly-sweetened tea, and caribou and macaroni stew, is still far superior to a meal where game, fish, bannock, lard, oatmeal, berries and tea have been replaced with packaged cheese macaroni, white bread and lard, processed meat, orange-flavoured crystal drinks, soda pop and potato chips. Apparently, even tainted country food is better than store-bought food. An article in

the March 13, 1989 issue of News of the North (Section A, p.3) implores the residents of Broughton Islands, Northwest Territories to continue their practice of eating country foods despite the discovery that these foods are contaminated with polychlorinated biphenyls (PCB's).

Revitalization of the Traditional Diet

There are signs that native people are increasingly interested in returning to traditional patterns of life whenever feasible. The revitalization of traditional culture may include the revival of plant use for food and, as we shall explore later, for medicine. Wein found that native people from every age group in the Wood Buffalo National Park region prefer country food to store-bought food and feel that it contributes to their health (Wein 1989:199). Other than berries, however, wild plant food is infrequently used. Many people, though, and particularly older people, say that they would use country foods more often if they were available (ibid: 71).

The preservation and revitalization of traditional health-promoting practices is supported by many researchers familiar with native culture (cf. Freeman 1988; Kuhnlein 1984; Rushforth 1977; Schaeffer 1977; Schaeffer and Steckle 1980; Turner 1981; Wein 1989). Schaeffer, for instance, is concerned about the increasing wastage of northern local food resources and the need to restore greater reliance on and usage of native food resources (Schaeffer 1977:18). Wastage occurs not only through disuse of a potentially rich food source, however, but also through frequent spoilage of imported produce and through cash resources spent on overpriced store-bought goods.

Wild food use is also promoted by Health and Welfare Canada through their nutrition-education programs (1985 and 1986). These dietary schemes and education efforts include a variety of native foods. The existence of such programs points not only to the need to improve native nutritional status but also to the continued appeal of wild foods. Native cookbooks also indicate an interest in country food. The Lovesick Lake Women's association, for example, has published a book of local recipes with the intent to preserve native heritage and provide economical and wholesome meal solutions for low-income families (1985).

Although a complete return to wild plant foods probably would not be possible, might not be desirable and could not solve all nutritionally-related health problems, a partial return would be one way for native people to improve their health at low cost.

Further Research Needed

According to Eleanor Wein, there have been very few studies of the food consumption patterns and nutrient intakes of northern Canadian Indians. One of the problems with existing research is that the data is not broken down by region. Health and Welfare Canada's Nutrition Canada survey of 1970-72, which identified suboptimal dietary intakes of some nutrients among the Indian population, displays this shortcoming (Health and Welfare 1975). Health and Welfare's Native Foods and Nutrition (1986) also fails to associate these foods with their geographic or cultural

areas and does not consider the effects of food preparation methods or seasonal availability on nutritional value.

More data is needed on the nutritional value of plants, with special consideration given to the manner in which they are traditionally prepared and how this affects nutritional value. More information is needed identifying plant uses by region and by tribal or band affiliation. The Dene Cultural Institute is conducting interviews with elders in various communities in the Northwest Territories to identify plant uses, particularly medicinal uses (Ryan 1989). Some of these plants, such as rosehips and labrador tea, also have nutritional value. This kind of research is significant as it is community based and identifies the plants that people actually use and believe are good for their health.

Herbal tea preparations should be analyzed for their nutritional value, not forgetting that many nutrients, especially vitamin C and the vitamin B complex, are affected by oxidation or heat. Data on the nutrient content of foods presented in the literature rarely consider this factor; these data are usually presented for raw food. However, steeping vegetation for tea, placing the vegetation in boiling water and removing from the heat, will maximize the amount of vitamin C. The longer the steeping time, the more ascorbic acid in the tea (Berglund and Bolsby 1974). It would also be useful to know the nutritional value of saps such as white birch sap and of spruce gum which was not actually eaten but was chewed.

Kuhnlein, who has studied traditional and contemporary foods of northwest coast native peoples, has recognized that effective programs for increasing the use of traditional native foods must consider the nutritional composition of these foods and how they will be used in conjunction with store-bought products. The hazard of toxins in wild plant foods also must be evaluated and presented. Whether or not certain plants are culturally acceptable as food to a particular native group and whether or not these plants are physically accessible to people must be known for native nutrition promotion programs to be effective (Kuhnlein 1984: 790).

In brief, there is a great need for additional research on native nutrition and the potential role of wild plant food in native diet. If research successfully addresses the issues raised above, it should be possible to effectively promote greater use of wild plants for food.

Part II: The Use of Wild Plants for Medicine

The Ethnopharmacology of Native Medicine

There have been very few in-depth, longitudinal studies of native treatment practices. Scientific assessments of the efficacy of native healing practices have been equally rare. There have been, however, numerous studies of the medicinal use of wild plants used by people around the world. These studies fall into three broad rubrics: (1) the study of the use by lay people of herbal remedies handed down from one generation to the next; (2) the study of the use of medicinal plants by native healers; and (3) the study of native medicinal plants for the purpose of

developing modern drugs (Ayer and Browne 1988) such as digitalis (extracted from the leaves of foxglove), reserpine (extracted from the roots of the snakeroot plant), quinine (extracted from the bark of cinchona tree), and aspirin (originally extracted from white willow). Category one falls within the domain of folk medicine whereas categories two and three are encompassed by the field of ethnopharmacology (Holmstedt and Bruhn 1983). In this article, we are most concerned with category two —the ethnographic dimension of ethnopharmacology.

Ethnopharmacologists describe the categorization and use of medicinal plants by different indigenous and ethnic groups. This aspect of ethnopharmacology is thus a branch of ethnology (the comparative study of human groups and their cultures) on one hand, and a branch of ethnobotany (the comparative study of the classification and use of plants by aboriginal groups) on the other. Although North American Indian medicine probably has not received as much attention as indigenous medicine in some other parts of the world, there is, nevertheless, a growing body of literature.

It is beyond the scope of this paper to survey the ethnopharmacological literature on native medicine in North America. To illustrate this type of research, however, we have examined the use of several herbs found in the repertoires of both Mr. Russell Willier, a medicine man from the Sucker Creek Reserve in northern Alberta, and Mr. Luke Chalifoux, a medicine man from Grouard, a Metis settlement adjacent to the Sucker Creek Reserve. This paper will present the results of that comparison.

The data on Russell Willier's pharmacoepia were collected during 1985 when investigators from the University of Alberta (David Young, Lise Swartz, Grant Ingram, and Carl Wolgien) and the Provincial Museum of Alberta (Ruth McConnell and Judy Golub) were allowed to accompany Willier on two herb-harvesting trips in northern Alberta. The data on Luke Chalifoux was collected by Dr. Anne Anderson in the mid 1970s (Anderson 1977). The comparison is interesting not only because the two medicine men come from the same vicinity but because the herbal repertoires revealed by both include approximately 40 different plants. Of these 40 plants, 15 are used by both healers. We have comparative information for 13 of these. Based on this data, we would like to make the following generalizations:

1. It is misleading to talk about Indian medicine as a uniform body of knowledge.

Even though the two medicine men live within a few miles of each other and come from the same general cultural background, they practice medicine quite differently. There is little more than a one-third overlap in their plant repertoires, and the plants that they both collect are frequently used in quite different ways. The same generalization applies to pan-Indian medicine. Gottesfeld and Anderson (1988) recently conducted a study of the use of medicinal plants by Northwest Coast Indian groups. They found that neighbouring groups do not necessarily use a given plant for the same purpose. To take an example, Devil's Club is used by both the Gitksan and the Tsimshian as a laxative. The Gitksan, however, use the plant to treat

tuberculosis —a practice which does not seem to be shared by the Tsimshian. On the other hand, the Tsimshian use Devil's Club for diabetes whereas the Gitksan apparently do not. Part of the explanation for this lack of uniformity is provided in the following point.

2. Indian medicine frequently involves sacred and therefore secret knowledge.

In some North American Indian traditions such as the Cree of northern Alberta (Young et al. 1989), medicine is passed down from generation to generation in medicine bundles which are considered sacred. Recipes, like other forms of traditional knowledge, can also be transferred to another person such as an apprentice, elder, or healer. In the latter case, it is customary to present the person from whom knowledge is sought with tobacco, and frequently with a piece of cloth and/or a gift. This custom helps to emphasize the fact that traditional knowledge should not be treated lightly. Healers also like to know that when knowledge of plant combinations is passed on, the other individual will follow sound ecological procedures in terms of harvesting the plant (after it has had an opportunity to reproduce itself). It is also important to have assurances that the recipient will use the knowledge responsibly, i.e., that the medicine will be used only for good purposes.

For these and other reasons, recipes tend to be guarded closely within medicine bundle lineages. Healers frequently encounter Western doctors and researchers who are upset when native healers refuse to divulge their traditional knowledge "in the name of science". Healers know that if they share their "secrets", the plants may be overharvested (or collected at the wrong time of the year), that medicines will be used outside their appropriate ritual context, and that drug companies may make huge profits with few of the benefits being returned to native communities. It is not surprising, therefore, that healers are reluctant to discuss details of their pharmacopoeia with outsiders or even with each other.

3. Native medicines are not simply placebos or general tonics.

Despite variations in use, it should not be assumed that the native use of wild plants for medicine is arbitrary or without scientific foundation. While only a small percentage of native medicines have been systematically studied in terms of their chemical properties, enough work has been done in various parts of the world to establish the fact that the efficacy of medicinal plants does not depend solely on any placebo effects the treatment may produce. Medicinal plants frequently contain at least one active ingredient —and sometimes several (Ayer and Browne 1988).

It also should be pointed out that the kind and number of active ingredients in a plant depend upon what part of the plant is used (root, stem, leaves, or flowers), what time of year the plant is harvested, and how the plant is processed. Given the complexity of these factors, it is quite conceivable that a single species of plant can yield several different kinds of medicines, and therefore, be used to treat several different kinds of diseases. To the unskilled observer, it may appear that plants such

as sage and mint are general "cure-alls". But this kind of simplistic observation does not do justice to the sophistication of Indian medical knowledge.

4. The full complexity of native medical knowledge is unknown to outsiders.

Chalifoux provided more detailed information concerning the use of specific plants than did Willier. Willier is not overly reticent, when pressed, about talking about remedies involving a single plant species, but he does not volunteer this information because he believes it lies with the domain of "folk remedies". It is therefore public knowledge and not of great importance in terms of the sacred knowledge passed down in a medicine lineage. Simple folk remedies seldom make it into medicine bundles which tend to be restricted to recipes for complex mixtures of herbs, referred to by Willier as combinations.

Willier does not divulge information about combinations, although, on occasion, he has allowed the preparation of a combination to be observed. He knows that we will not describe the process to anyone else — partly because we have promised to keep sacred knowledge secret, and partly because the process is too complicated to remember anyway. A combination involving up to ten different herbs and animal parts, and taking up to three weeks to prepare, requires a good memory and long years of training and experience. Chalifoux, like most other medicine people (both men and women), probably shares Russell's conviction that "the really important stuff" should not be divulged. Because of this type of restriction, ethnopharmacological studies of native medicine in North America have only scratched the surface.

The true breadth and sophistication of native medicine remains unknown. Secrecy helps protect traditional knowledge from abuse but, unfortunately, it means that when an old medicine person dies without a successor, he/she may carry priceless information to the grave. Healers like Willier and Chalifoux are attempting to rectify this situation by sharing at least some of their knowledge with outsiders (and, in some cases, even writing recipes down for inclusion in medicine bundles). Innovations of this sort require considerable courage because of criticism from within the native community and scepticism from cosmopolitan doctors who wish to have more revealed.

In summary, native medicine is a science which requires extensive knowledge of plants, their properties, when they should be harvested, how they should be processed, and how they should be combined. This knowledge has been developed over centuries by experimentation and trial and error; and requires years of learning (usually in an apprenticeship situation) to master. In addition to making a substantive contribution to the modern drugs the rest of us have come to rely upon (nearly half of modern non-prescription drugs, for example, contain natural constituents [Gibson 1969]), native medicine continues to provide service to people who lack faith in Western cosmopolitan medicine, or for whom Western medicine is too expensive or inconvenient to utilize. It is of utmost importance that native medicine be preserved and encouraged.

Conclusion

We hear a good deal about the air and water pollution resulting from pulp mills. But we hear much less about the loss of the forests themselves. It is particularly distressing to learn that much of the Boreal forest has already been allocated to large timber harvesting firms. Deforestation alters the ecosystem in terms of variables such as acidity, amount of shade, and erosion of topsoil. In areas that are not farmed (as in artificially replanted tree plantations), wild plants may return, but there may be fewer species, or at least a different type of plant distribution. Some plants, such as fireweed, will thrive; but those plants which were adapted to a cool and moist forest understorey will not grow back in an area which has been clear-cut. Deforestation creates a more homogeneous environment, reducing the number of ecological transition zones, such as between grassland and forest areas, where most genetic diversity occurs. Though the plants which grow back in a deforested area may have useful nutritional and medicinal properties, they may not be familiar to native people whose repertoires are the result of generations of experimentation with the plants in a particular ecosystem. Also, with deforestation comes the use of herbicides and pesticides along the new roads and other developed 'corridors'.

As we have seen recently, even national parks do not guarantee the survival of wild habitats as parks are frequently being turned into multi-use areas. When national parks do succeed in maintaining their wild character, they are not open to native people for hunting and gathering. Consequently, steps must be taken, where it is not already too late, to preserve wild areas outside of national parks. Moreover, these wild areas must be sufficiently extensive that they are accessible to native people without necessitating long-distance travel. Otherwise, they will not provide a viable alternative as a source of food and medicine.

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The Essential Spirituality of North American Indian Culture

Jane Ash Poitras
School of Native Studies
University of Alberta

The essential element of the North American Indian culture is its spirituality, both in the nature of spiritual beliefs and in the way they were expressed in every aspect of the lives of this continent's First People.

That spirituality was the most vital and pervasive of many ways in which the traditions, values and practices of Aboriginal cultures on this continent differed radically from those of the Europeans who came after them. It defines who they are, how they relate to the world around them and how they live their lives.

Understanding Aboriginal spirituality is fundamental to understanding Aboriginal people as they are today as well as how they were in the past. It is futile to attempt to study the Aboriginal people of North America unless such study is approached from the Aboriginal perspective, with the spiritual ideology of their cultures as the primary context in which to consider all other aspects. This applies to contemporary as well as historical studies, and to legal and socio-economic issues as much as to art and culture.

The continuing tragedy of Aboriginal people in conflict with the systems of modern society is directly rooted in the loss of their traditional spirituality. It is not that this spirituality is not adaptable to contemporary life, but that there is a concerted effort to block its application by those who have no understanding of it and no willingness to learn.

It should not come as a surprise, therefore, that the most successful programs for Aboriginal people are those approached from an Aboriginal perspective, grounded in their traditional spirituality and providing for significant participation from the Aboriginal community, particularly the Elders and spiritual leaders. Included among those successes are Aboriginal justice systems, university Native studies programs, drug and alcohol rehabilitation programs, Aboriginal self-government models, economic development initiatives, training and employment programs, cultural activities and scholastic and specific ways of healing.

It is both encouraging and somewhat ironic that where there have been such successes, people outside the Aboriginal community are turning to them in search of answers, most often for healing and as a means of addressing their environmental concerns.

But just what is this Aboriginal spirituality that gives people so much trouble? What is so intimidating about it that it's rituals have been forbidden? What compels people to dismiss it as "hocus pocus" and "mumbo jumbo" before they even have any knowledge or understanding or experience of it?

Prior to the arrival of the European, the North American Indians lived in societies based on rich, spiritually-based cultures with traditions that had evolved over many generations. It was their spiritual beliefs and the culture that expressed them that gave people their sense of identity, of their distinctive individual and collective place in the world.

As the European dominance of North America spread across the continent, the appropriation of traditional Indian lands and the massacre of their primary source of supply, the buffalo, was not the most critical consequence for Indian people. A more significant loss was the denigration and denial of their spiritual beliefs and practices, the desecration of their sacred places, the appropriation of religious and cultural artifacts, the end of a lifestyle and social beliefs and coercion to adopt the religion and lifestyle of their conquerors.

If the North America Aboriginal people would have responded in kind against Roman Catholics, for example, they might have forcibly appropriated all homes and other lands owned by them, seized and plundered all businesses, vandalized churches and cemeteries and stripped them of all ceremonial objects and decorations for display in Aboriginal-controlled Catholic museums, forbid all Catholic religious services, forced them to practice Indian ceremonies and accept Indian beliefs even to the extent of taking Catholic children from their homes to live in Indian villages and learn from Indian Elders, and assigned them to prescribed areas where they would be expected to live the traditional Indian way.

I expect such a scenario would be difficult, if not impossible, for most non-Aboriginal Catholics to contemplate. Such a comparison would be in direct conflict with the assumed superiority with which most Europeans perceive their own culture. To most of them, the "pagan" beliefs and rites of Aboriginal "savages" are inferior to their own beliefs, and do not deserve the respect and consideration they expect for their beliefs and rituals.

They would do well to revisit their own history and compare the "pagan" beliefs and rites of their own ancestors. They would find amazing similarities between North American Aboriginal beliefs and rites and those of the Celts, the Teutons, the Vikings and most other European forebears. The Judeo-Christian beliefs and rituals they so proudly propound did not originate with them, as we well know but often fail to acknowledge, but came from the Semite races of the Eastern Mediterranean. Eloquent evidence of their self-delusion is that most of the portraits of Jesus show a man with blue eyes, light-colored hair and fair skin, rather than the brown-eyed and swarthy man he probably was.

With such a skewed perspective on their own history, religions and sense of self, it is little wonder that they are unwilling and/or unable to consider and attempt to understanding Aboriginal people from an Aboriginal perspective.

This lack of understanding, this cultural bias, is at the heart of the continuing conflict between Aboriginal people and the dominant society, particularly as it is presented by its governments and institutions. Even more damaging to Aboriginal people, is that its own leaders have become caught up in the same trap in their efforts to deal with those institutions. They have sacrificed their very strengths in an effort to obtain benefits from their conquerors.

The continuing tragedies of reserve life should be ample evidence that land is not the answer. The financial assistance of Indian Affairs, and the wealth of reserves with resource revenue has not removed those tragedies, and in fact has clearly added to them.

Self-government has not made life easier for ordinary Indian people. With too few exceptions, Indian leaders are just as suppressed, denied control over their lives just as much, are just as deprived of their rightful benefits and face just as much tragedy under their leadership.

Being Indian is not about power. It is not about money. It is not about land. All those things are necessary, but they are of no value if we do not have our spirituality, our culture, our identity.

We must look to our spiritual leaders for guidance. Only through spiritual renewal can we find out who we really are, be empowered to achieve our potential, acquire the wisdom to eliminate the influences that bring tragedy upon us and destroy us.

Real power is not about getting the most votes, gaining control over the most money, manipulating the most decisions. Real power is about finding our own spiritual guidance and helping others to find theirs; it is about admitting our own limitations and ignorance so that spiritual power and wisdom can work through us; it is about empowerment and transformation, not about abuse of power and manipulation.

The addiction and violence and lost ambition that plague our people can readily be blamed on history, on our conquerors and their continuing domination of our lives. We can easily justify being victims in the material world.

But there is another world, a spiritual world, where we are victims only if we choose to be victims. And from that world we can, if we choose, gain the guidance and wisdom and power that will enable us to cease to be victims in this world.

We can and must continue to seek just settlement of our Aboriginal rights through the return of lands and other compensation, for that will provide better resources for our lives in the material world. But that, by itself, is not the answer.

Too often, the excuse Indian people use is that the Indian way is incompatible with the contemporary world, that Indian spirituality and culture and identity is dependent on traditional lifestyles, that it requires ancestral lands and survival through hunting, trapping and fishing.

But the land has been invaded, and very little will be returned; the buffalo are gone and will never return in the numbers that once thundered across the plains; the opportunity for hunting, trapping and fishing is increasingly limited, and fewer and fewer Indians know how to survive in that lifestyle even if the opportunity did exist.

The loss of opportunities for traditional lifestyles does not mean that Indian identity and cultural and spirituality is lost too, however. One of the greatest strengths of Indian people throughout their history has been their adaptability and their ability to appropriate anything new they encounter and make it their own.

Horses, blankets, guns, beads — all were appropriated and became part of the lifestyle of various tribes.

Even when forced onto reserves with poor land, and despite little knowledge of agriculture, many Indians became successful farmers. It was only when Indian agents interfered in the operation of those farms, forcing restrictions and imposing decisions that were ill-founded, that they failed.

Today, more and more Indians are becoming successful warriors and healers, storytellers and teachers in mainstream society, applying those same historical values to contemporary situations, proud and certain of their identity, successfully maintaining their culture as adapted to their new situation, and relying on the same spiritual resources that guided their forefathers.

Unfortunately, too many others have not found their way back to that spiritual path.

One source of guidance for people searching for the path back to their spiritual roots is through art, for there are a number of Aboriginal artists who create spiritually inspired work, and often such work deals with the wide range of issues affecting Aboriginal people today.

But how does this spirituality through art feed the human consciousness, and work toward the transformation of mankind? And can the artist today act as shaman and reveal shamanic powers through the art that is created?

If one views the work of renowned Cold Lake artist Alex Janvier in his "Apple" series, one is not only eloquently presented with the issues, but often given them in a humorous way that is both satirical and sardonic and a biting reminder of how racist and narrow mainstream thinking can be.

As Jamake Highwater writes in his book *The Primal Mind:*

> "Before the twentieth century the most prevalent line of thinking to explain racial differences was based on a conception of degeneration that was born out of the monogenesis of Christian orthodoxy. This viewpoint imagined the continuing degeneration of humankind after the expulsion from Eden to the present time.
>
> It was conjectured that idolatry and heathenism as well as the wide differences in languages and manners, represented the decay of people's grasp of the original knowledge of God at the time of Eden. The long separation of humanity from Eden had led to decay instead of progress, to corruption instead of achievement. Accordingly, Indians were seen as corrupt copies of the Jewish past or were related to degenerated shadows of other past civilizations."

Sadly, this kind of thinking persists today. And this is the very thinking that Janvier pokes fun at.

Now that the "barbarian" Indians are Christianized, there are worse problems than ever. Canada, along with the United States, has nothing to be proud of in its shabby treatment of Indians. One need only to look to the statistics for evidence: highest infant mortality, highest suicide rate, highest incarceration rate — the list goes on and on.

Aboriginal artists are becoming increasingly forthright in exposing and emphasizing such issues, as Whitehorse artists Jim Logan has done with his very powerful piece, titled "Night Visits", which deals with priests molesting young Indian boys. Here we see a priest, very realistically portrayed, holding his hand over the mouth of a young boy while touching the boy's genitals. Not exactly living room art.

It took courage for Logan and other artists like him to paint such graphic and revealing imagery. Pretty pictures have their place, but before the healing can begin, artists like Janvier and Logan can help identify the issues in a way that is impossible to ignore.

The way crises affecting Canadian Aboriginal people and Third World conditions can be transformed is by allowing people to be who they are, not by trying to make them fit some colonial paternalistic mold.

What the Canadian government has been doing, and continues to do repeatedly, is to deny the Aboriginal people the freedom to practice their innate, spiritual, traditional ways. There are laws imposed on them telling when and where they can hunt and fish. They are forced to go to schools where the language used and the curriculum are foreign to what they are taught at home. They have values and judicial systems imposed on them that are alien to their culture and lifestyle.

In the small northern community of Laloche, Saskatchewan, 80 per cent of the children drop out of school because the teachers speak English, but no Chipewyan, the language of the people there. When a six-year-old child enters school, he or she has great difficulty relating to a non-Native teacher foreign to the community and the language and the culture.

The same problems that existed in residential schools still exist today.

In Fort Chipewyan, a teacher training program for residents was started. The majority had no difficulty completing the first two years toward their Bachelor degree at Keyano College in nearby and familiar Fort McMurray. The problem arose when they faced the mandatory two final years of study at the University of Calgary. Most were unable or unwilling to uproot their families (some had as many as six children) and move to an urban centre far from their homes and totally foreign to them.

The imposition of such expectations, and expecting success, is as unrealistic as expecting people of the Yamato Tribe to operate efficiently in New York City.

Such schemes fail to take into account the three most important things to Aboriginal people:

1. Above all, their families come first. They drop everything to their family's needs. The many births, marriages and funerals in the extended family are major events in Aboriginal family life. They are more important than going to school or going to work because school or work (if you're lucky) will always be there. But in the mainstream value system, which is steeped in materialism, school and work come first, with most of the day spent earning the money to become consumers of products they don't even have the time to use. They are the victims of massive advertising campaigns which convince them that they need all these things, and leave them wondering why they are still unhappy. In traditional times, and not only in Indian societies, people were more concerned with feeding their spiritual hunger than they were with satisfying their greed for material possessions.

2. The second most important thing about Aboriginal people is their spiritual soul. Every Aboriginal person, along with the rest of mankind, has a deep desire to seek knowledge beyond the profane. To do this they, like their forefathers, should be allowed to believe as their progenitors did. If reincarnation is real, as I believe it is — if Elijah Harper is the reincarnation of Sitting Bull or Chief Joseph, for example — then Aboriginal people today should be allowed to fully practice the deeply spiritual ancestral rituals that worked so long ago and can work today when they are so badly needed.

But how can they practice those rituals when so many of the sacred relics of all Aboriginal peoples are sitting in museum drawers collecting dust? As I was told by one museum director, he and others like him are "keepers of the culture," and if Aboriginal people had them returned, they would not know how to take care of them. He said we should be glad these "educated" anthropologists and ethnologists are here to take away our sacred objects because they know better how to preserve our spirits.

Well, the spirits told me that they want all those sacred bundles and drums and amulets returned to the medicine shaman of the tribes to which they belong. We can look after our own spirit rocks and feathers. We know what the spirits want, and those objects have no power in the wrong hands. Maybe that's why those objects are in the museums — to promote a romantic view of Aboriginal people, and to keep the power of those objects away from them.

3. Which brings us to the third most important thing for Aboriginal people — themselves. All Aboriginal people are concerned for their own destiny, and know how to take care of themselves. But when their traditional food source, land, home and spirituality is stolen from them, then there is an Aboriginal problem that was created out of ignorance and greed.

Resources

ALEX JANVIER

1. Opus Hydrodynamic (48 x 60)
2. A Treaty Promise (24 x 20)
3. Jilted For Greener Pastures (24 x 30)
4. Planet Earth Plea (22 x 30)
5. Been To Apple Town (30 x 22)
6. Blonde Blue Eyes Soliloquy (24 x 20)
7. Peaceful Co-existence(41 x 29)
8. Apple Canoe Invaders (30 x 22)
9. Apple Lack Of Power (30 x 22)
10. Apple Heart Throb (22 x 30)
11. The Authentic Stereo (24 x 20)
12. A Cliff Hanger To The End (30 x 24)
13. There's One In Every Tribe (30 x 36)
14. Opus C31 (30 x 24)
15. Been to Apple Dream (36 x 30)
16. Apple Skydome (30 x 36)
17. Mother Earth (30 x 22)
18. Return To Your Roots (24 x 30)
19. Cultural Orphan Annies (20 x 24)
20. Firewater Dreamer's World (30 x 22)
21. Sweetheart Apple Deal (30 x 22)
22. Sixteen Going On Sixty (41 x 29)
23. Picking Up The Apple Pieces (36 x 24)

Delivering Complex Health Messages to Northern People: A Voyage Through the Arctic Cs (Seas)

Bryce Larke
Department of Pediatrics and Department of Medical Microbiology and Infectious Diseases,
University of Alberta

Concern
Curiosity (scientific)
Commitment/Courage/Conviction
Co-operation/Collaboration
Communication/Coordination
- Contacts
- Computers
Confidentiality
Consistency/Continuity
Challenges for the future

Concern

I had concern as a physician that a health issue existed. Hepatitis B had been recognized as a significant cause of illness and death among aboriginal peoples in Greenland and Alaska; it was reasonable to assume that infection with hepatitis B virus (HBV) might be highly prevalent among those living in Canada's circumpolar regions.

There was concern that something could be done about the problem if it existed. Laboratory tests developed in the late 1960s and further refined during the 1970s and 1980s permitted blood testing of persons to determine if they were actively infected with HBV, whether they had been infected at some time in the past and now had natural immunity, or whether they were susceptible to infection if exposed to HBV. A safe, highly effective hepatitis B vaccine became available

in Canada during 1982. I had been the principal investigator of a multi-centre field trial of the vaccine among dental students in Edmonton in 1981-82 and was convinced of its usefulness in preventing disease among populations at increased risk of HBV infection.

Curiosity

As a medical scientist I was curious to learn whether HBV infection might be endemic across the Northwest Territories (NWT). If so, did it follow the patterns seen in areas of Greenland and Alaska where rates of HBV infection varied widely from one community to another, even those in close proximity? I had done some preliminary blood testing of Native Indians living in Northern Alberta and around the Sioux Lookout region of Northern Ontario without finding any noteworthy increase in rates of HBV infection compared to whites and other ethnic groups elsewhere in Canada. Would things be different in the NWT?

Commitment/Courage/Conviction

To undertake the first step, an extensive seroepidemiologic survey of HBV infection among the scattered communities of the NWT was going to require an enormous commitment of money and professional time. It meant starting by writing grant applications to seek necessary funding — and lots of it. It would involve months of travel in the North and then months of laboratory testing and analysis of results. To successfully complete such a vast project required a certain amount of courage and the conviction that one was pursuing a worthwhile cause.

Co-operation/Collaboration

Clearly, such an enormous undertaking was going to require the help of others. The trail began with the Boreal Institute for Northern Studies at the University of Alberta. The Director at the time (1982), Mr. Robbie Jamieson, was very interested in my proposed survey of hepatitis B in the NWT and offered assistance in obtaining funding. In addition, Robbie Jamieson had been one of the early members of the Government of the Northwest Territories (G.N.W.T.) and suggested ways of obtaining the co-operation and support of key people in the North. To make a long story short, I sent my proposal to the Donner Canadian Foundation and received about $350,000 to implement the survey.

Both the Medical Services Branch of Health and Welfare Canada and the Department of Health of the G.N.W.T. had responsibility for overall health programs and service delivery in the NWT. I discussed my project with Dr. Otto Schaefer and Dr. E. S. O. Smith from Medical Services Branch and received their unqualified support. Most importantly, Dr. Smith, who was serving as the Chief Medical Officer of the NWT until his death in 1983, agreed that if my survey indicated a need for hepatitis B vaccine among segments of the population of the NWT, the Department of National Health and Welfare would undertake to provide it.

Communication/Co-ordination

Contacts

On the sound advice of Mr. Robbie Jamieson, we began "at the top" to apprise key people in the NWT of our proposal and to ensure the critically important participation of the Inuit and Dene across the Territories. Mr. John Parker, Commissioner of the NWT, was first on our list of supporters and he pledged assistance from whatever Branches of government might be required. The Assistant Deputy Minister of Health, G.N.W.T., Mr. Michael Pontus, was most enthusiastic about the proposed project and remained a major source of help over the next three years.

Our initial contacts were not limited to government officials. I met personally with the Anglican Bishop of the Arctic so the local clergy would know who we were and what we were doing in their community. The Anglican ministers and Catholic priests were usually long-term residents, knew their people well and spoke the local dialect. This later proved invaluable when we encountered problems with the written or spoken word.

Wherever it could be arranged, I met with local physicians to describe the hepatitis B project. Since most had seen little or no clinical evidence of HBV infection in their communities they were initially somewhat sceptical about my finding any serologic evidence of hepatitis B. Nor were we encouraged in our endeavours by some of the senior nurses at the Health and Welfare Zone Nursing Offices. One veteran nurse made dire predictions that if the children got wind that we were going into the schools to get parental permission to take a blood sample from them, most of the permission slips would never make it back to us and the children would simply stay away from school until we got discouraged and left town.

We decided to plunge ahead anyway and chose the Baffin Region for our first field work. I met with the Baffin Regional Health Board and got their approval. The Baffin Regional Council, an organization consisting of the mayors or settlement chairmen of the 14 communities in the eastern Arctic, was also supportive. Although we modified our strategy as time went on according to variations in regional and local administration, the approach we took to delivering our health project message at the community level required a number of well coordinated steps.

A letter, signed by the Minister of Health, G.N.W.T., and often co-signed by the local elected MLA, went to each mayor, Dene band chief or other appropriate community leader. These letters stressed the importance of the hepatitis B project to the health of the community and affirmed the integrity and moral stature of our field team. The latter statement probably carried more weight than perhaps one might imagine: the aboriginal people of the NWT have been exploited in the past by seemingly unethical and uncaring researchers. Along with the letters to each community went a one-page note, outlining in very simple lay terms what hepatitis B was and how we proposed to reduce the risk of HBV infection in their communities. In all of the correspondence and communications, we never used the words

"research" or "study", making it clear this was instead a health program to improve the well-being of the people. Although undertaken with the full support of Health and Welfare Canada and the G.N.W.T., I also emphasized the program was conducted under the aegis of the Boreal Institute of the University of Alberta and supported by private funds.

The Assistant Deputy Minister of Health also sent letters on our behalf, requesting the full support of the Regional Director (the principal executive officer of the G.N.W.T.) in each of the five administrative regions. I contacted each Regional Superintendent for the Department of Education to arrange meetings with local representatives of Community Education Councils and each school principal, who had also received letters of introduction and explanation from the Assistant Deputy Minister of Health.

Arctic weather conditions frequently result in unexpected and sudden changes in travel plans. I maintained frequent telephone contact with the Zone Nursing Officers to ensure that our visit to a community did not conflict with the scheduled visit of other medical or dental teams. Not only did we wish to avoid having more than one health activity going on at a particular time in a community, there was the practical consideration there might not be accommodation available for my nurse associate, Glory Froese, and myself.

Updated communication and coordination were vital to the success of delivering our health message. A day or two before the planned flight to the next community, I would again try to telephone all of the key players locally to confirm that letters had been received and meetings were as scheduled. Mayors, Band Chiefs, hamlet or band counsellors, Health Committee members and school authorities went out of their way to hold special meetings with us within hours of our arrival in a community. Working through an interpreter much of the time, I thanked them for their courtesy and outlined, in simple words and phrases, the purpose of our visit and the importance of having their community participate as fully as possible in the blood sampling program. I quickly learned there were no such words in the native dialects for "virus" or "hepatitis B". These became "very small germs" and "a sickness in their liver". The concept of a chronic carrier of HBV, whereby a person may look and feel well yet have the virus in their blood and other body fluids for years after an often unapparent infection and be able to spread the virus to close household and sexual contacts, may be difficult for many lay people to understand. Add to that the possibility of developing serious liver disease, including an unusual type of liver cancer, perhaps 20 years or more after HBV infection. The community leaders would nod wisely and solemnly give me their "I agree" through the interpreter. Unfortunately, with no skills in the local dialects, it was difficult to know how much was understood and I have the feeling there may be people in the NWT with images of small worms flowing through their blood and vital organs, creating some form of internal havoc.

I repeatedly emphasized I was carrying out a health program for the general benefit of the community and sought their suggestions as to how best I should go about collecting the necessary blood samples. Where would the people most likely

be willing to go? Frequently it was the hamlet or band office, perhaps outside the door to the local arena or school gymnasium where the people were attending sporting events. We purposely avoided using the local nursing station whenever practical, partly to ensure we did not interfere with delivery of regular health services but more to identify the hepatitis B program as a distinctly different, community-oriented undertaking. I made it clear I had no budget to rent the local community hall or to pay translators or persons who gave a blood sample. This was their community program, not my research project; I was there, if the local people wished to participate.

After getting official community approval to proceed, the next step was publicity. The local radio stations were an invaluable asset in this regard. People always listened to local news and announcements during the lunch hour and late into the night. Through an interpreter, I would give my simple health message, explain the need for parental consent to take blood samples from school children and give the hours for "clinics", as we called them, for adults and preschoolers. On one occasion a school teacher, who understood Inuktitut and had heard my radio message, told me the interpreter was talking about the kidneys rather than the liver but that minor problem certainly did not alter a strong public turnout.

I came to learn as I travelled from community to community that much of the positive response to the hepatitis B program was simply due to my being there. This is not to appear immodest. For people used to receiving nearly all their health services from a nurse at the local nursing station, the presence of "the doctor", willing to stay in their community for several days to obtain the blood samples and answer their questions on the phone-in to the local radio station, added a major level of importance to the program, in their eyes. While this was personally gratifying, it proved impractical to have my highly skilled nurse associate travel to a community on her own. We learned this from unfortunate experience; people were reluctant to support the health program when the message was delivered by "just a nurse".

The greatest satisfaction came from dealing with the children in school. Everyone in the Department of Education, from the Regional Superintendents to school janitors, was most co-operative and helpful. After deciding with the teaching staff the best location in the school where we could set up our blood taking station, I would go from classroom to classroom trying to explain why I was in their community and the importance of getting a blood sample. Simply worded consent forms, printed in both English and the appropriate regional dialect, were sent home to the parent or guardian of each child. Despite the dire warnings of the veteran nurse who earlier had predicted the forms would all end up in snowdrifts, never to be signed and returned, almost every student dutifully showed up with an approved consent. Teachers usually requested participation for themselves and were often willing to go first just to show the children that if you held your arm very still, having blood taken really didn't hurt. We always tried to start with the older students, so they could show how brave they were and serve as an example for younger brothers and sisters. The reward for having had your blood sampled was

nothing more than a plain band-aid on your arm but it became a major status symbol in the community. Again, contrary to the senior nurse's predictions, school attendance actually improved in many communities while we were in town, simply because it became "the thing to do" or parents wanted to make sure their children were included. We also found the children were good ambassadors — they would often persuade their parents to attend our clinics, along with their pre-school-aged siblings. Because parents are often reluctant to have blood drawn from a crying or struggling younger child we had initially decided we would not include anyone under age 5 years. However, many parents insisted on having everyone in the family "done" and my nurse proved to be most skilful in taking blood from infants and children.

Computers

Why include this as a separate heading? We quickly learned that without the capabilities of modern personal computers, such a massive project would have been very difficult, if not impossible, to manage. Of a total population in the NWT of approximately 48,000 in the mid-1980s, we obtained a blood sample on nearly 14,200 individuals living in the 51 communities that we visited. The sample included approximately 51 percent of the Inuit and 44 percent of the Dene population in the NWT. A medical student who did an elective period with me convinced her father, an expert in computers, to participate in our project. Dr. Milton W. Petruk, Professor of Industrial and Vocational Education at the University of Alberta, developed a computer program to analyze our data base consisting of 32 items of information for each of the thousands of blood samples. Computers also played a role in the laboratory testing and recording the results of the HBV serologic marker assays carried out at the Provincial Laboratory of Public Health in Edmonton under the supervision of Robert D. O. Devine. Computerized printers produced data sheets, one for each community, listing each person whose blood was sampled and the results of testing. These sheets were sent to the Nurse-in-Charge of the corresponding community nursing station/health centre. Without computers, we could not have sent individual results on all the participants, an undertaking we had made with each community when we first sought their participation in the hepatitis B project.

Confidentiality

Despite the large number of people included in the NWT program we endeavoured to maintain the strict confidentiality one should expect in a physician/patient relationship. A senior authority in each community was advised by letter that the results of individual laboratory blood tests had been sent to the Nurse-in-Charge and were available in confidence to each participant upon request. Confidentiality was also strictly maintained at the community level. Despite often intense pressure by the print and electronic media, I refused to divulge publicly the relative rates of HBV infection among the various communities. Experience in other countries had revealed the disadvantages to a community becoming labelled as the regional

"hepatitis capital" — with its potential impact on future tourism and business development or the perception it was an unhealthy place to live.

Consistency/Continuity

During the three years (1983-85) of the NWT hepatitis B surveillance project we maintained the consistency of our health message and our commitment to offering hepatitis B vaccine to communities identified as likely to benefit from such a control program. This continuity of purpose, from our first cautious approaches in obtaining blood samples through to implementing an immunization program, was fundamental to reaching our goals. Community health nurses throughout the NWT continue to play an important role in the follow-up process: they have contacted the chronic HBV carriers identified in our serologic survey and offer periodic monitoring to detect early signs of possible liver disease. Most gratifying from a personal perspective has been gaining the trust of the people of the NWT, seeing their desire to improve the health status of their communities and experiencing the courteous reception they provided to my associate, Glory Froese, and myself wherever we travelled.

By the end of 1986, hepatitis B vaccination had been completed in those NWT communities considered to be at highest risk for ongoing HBV infection. In the predominantly Inuit villages to which my nurse and I returned to give the vaccine, over 90 percent of the target population of persons 18 years and younger received the full three-dose immunization schedule.

Challenges for the Future

In September 1987, after returning from a year of AIDS research at the Pasteur Institute in Paris with the group that first described the human immunodeficiency virus (HIV), I received a telephone call from health authorities in the NWT requesting my participation in a challenging new health program: delivering a series of workshops on AIDS, the acquired immunodeficiency syndrome. Here was a disease, first described in 1981, where persons infected with HIV may look and feel healthy for perhaps 10 years or more before their progressively weakening natural immune systems give way to the development of secondary infections or certain types of cancer not usually occurring in persons with healthy immune defence mechanisms. During this period of apparent good health, persons (frequently unaware they are infected with HIV) can spread the virus to others through sexual intercourse or sharing of needles and syringes contaminated with blood while injecting drugs; a pregnant woman can pass HIV infection to her infant.

Here indeed was a complex health message to deliver! With no "quick fix" in sight, such as a vaccine or drug to control the spread of HIV infection, one has to adopt health promotion techniques and attempt to bring about changes in social behaviours that put people at risk of exposure to the virus. It means dealing with issues of human sexuality so sensitive in some communities that the interpreter may feel obliged to distance themselves from the message with phrases such as "This white man is asking me to tell you that .....".

Now, in 1991, aboriginal peoples in Northern Canada and elsewhere in our country are well on the way to "ownership" of HIV education and control programs specifically designed to meet their particular cultural needs. The AIDS programs include traditional ways of teaching and recognize the wisdom of the elders and the role of spirituality. The future health of many of Canada's aboriginal peoples may rest on the successful delivery of these messages, by their own people, in the next decade.

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No More Secrets[1]

Rosemarie Kuptana
Pauktuutit
(Inuit Women's Association)
Ottawa, Ontario

Introduction

This paper is aimed at demystifying child sexual abuse by providing information on what it is, how wide-spread the problem is, what to do when a child comes to you saying that she/he has been sexually abused, how one reports a child sexual abuse case, and finally, recommending ways of dealing with this problem in the North.

Everyone has a responsibility to work towards the elimination of child sexual abuse and Pauktuutit's contribution is to increase Inuit public awareness through this publication.

Pauktuutit is taking a proactive approach in educating its constituents. The language and style of this publication is written for the average person in the Inuit community and it is translated into the language of the majority of Canada's Inuit.

It is our hope that people will learn about child sexual abuse and know what to do when the situation arises. The first part of any solution is acknowledging the problem, then having the courage to act so that our children are protected.

The Impact of Child Sexual Abuse

> "It is also believed that a small portion of (child sexual) offenses are reported both in the North and the South."
>
> Police Officer, N.W.T. 1990

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1 A version of this paper was presented orally by Martha Greig (Health Coordinator, Pauktuutit, Ottawa) at the *Human Ecology: Issues in the North* lecture series.

This report concludes that child sexual abuse is vastly under-reported throughout the Canadian Arctic. This conclusion is measured through the responses that were received from the medical field, police and social/child welfare agencies in which 85% stated that they knew of a child sexual abuse or had heard about an abuse that had not been reported.

> "In observing several young women who have been sexually abused as children, their lives are fairly troubled and they have been abused time and time again. It is felt with consistent help/support in the community that people will slowly start to disclose."
>
> Social Worker, Arctic Canada, 1990

There are a number of considerations regarding the lack of reporting of child sexual abuse in the North. Some people may be ashamed or are in a state of disbelief. Some believe that reporting is not their responsibility and they do not want to get involved with social/child welfare services, the police or the courts. Some do not want the perpetrator to go to jail, to lose a father or breadwinner. Sometimes a mother denies that child sexual abuse is happening in her family, because of her need to remain married. The cycle of abuse may be reoccurring in the family, from one generation to the next, and if the adults have not come to terms with their own experiences of abuse, they may have great difficulty dealing with their child's current problem.

It is very difficult for people to disclose in a small isolated community, or even a larger centre, for fear of everyone in the community finding out about it. There is much concern about embarrassment, shame, guilt and repercussions from family members, friends, and the community. Along with many of the possible social factors, the victim may fear ostracism. In addition, it is not easy for the local people (Inuit in community) to trust transient professionals in the medical, social agencies or law enforcement fields, who often stay around for only a year or two. That is not to say, there have not been long-term residents from the south who have made a contribution to the treatment of victims and offenders.

The impact of child sexual abuse is very complex and there are wide-ranging effects. The result will vary from individual to individual.

If a child is being sexually abused, she/he is suffering mentally, physically, spiritually, and emotionally. Sometimes the abuse can go on for years and, in these cases, most often the effects last a lifetime. The impact of the abuse may be devastating. Research has shown that the emotional impact of the abuse depends on the age of the child, the nature of the assaults, the relationship with the abuser, and the degree of force used by the assailant. Victims of long-term incestuous sexual abuse have often been severely affected and require long-term therapy.

Multiple Victims, Multiple Offenders

There have been cases of multiple victims (a child sexual offender with many different victims), and multiple offenders (this is a child with more than one abuser.)

> "I was sexually abused over 20 years ago. I know of about 20 people that were sexually abused by this guy, the case never went to court. I was 12 years old."
>
> Voice of a Victim, NWT Community, 1990

In recent years, the courts have begun to hear more cases involving multiple victims or multiple offenders. Some of the multiple victims are just coming out into the open with their suffering and in the more publicized cases, the offenders have been either a member of the clergy or an educator.

The victim who has been assaulted by multiple offenders is almost always related to the offenders. Such victims will often lead very troubled lives, not knowing whom to trust.

> "My own experience was a sexual assault by two uncles and two cousins for a long time. I have no idea of how many more kids have been sexually abused. I know it happened to me and to some kids I know. Mostly girls. Me and my cousin used to hide from my uncles, but they always found us. They said that us girls wanted the sex, they said it was our fault."
>
> Voice of a Victim, NWT, 1990

In the cases related to multiple offenders and multiple victims sited in this report, the abuse had occurred over a long period of time.

Child Sexual Abuse — How Children Survive

> "I can't recall what year it happened. I finally got professional help last year. It's very difficult to deal with it. I am so angry.
>
> I had a lot of difficulty coping when I had to do sports — especially when I had to have a shower. It was like watching someone else. Someone that was dirty, confused and corrupt.
>
> I really felt "different" and alone."
>
> Voice of an Inuk Survivor, 1990

It is difficult to fathom the pain of a child who is suffering or has suffered sexual abuse. The aggressor has power and control over the child, both emotionally and physically. The child is often censored into silence. The human spirit has a magnificent will to survive. Children who have been victims of child sexual abuse usually find some way of coping with the abuse.

When a child is suffering and the experience becomes unbearable, the child simply exercises the ability of the human mind, the human spirit, to survive.

Some of the methods children develop in order to cope and survive include the following:

- Believing it was not real — just a bad dream.
- Believing "she/he didn't mean to hurt me, she/he was drunk".

- Forgetting or having a lapse in memory about the abuse.
- Disassociating one-self, mentally, from the experience. ("Disassociation" refers to the separation of the mind from what is happening to the body. For example, while being physically assaulted, the child's mind may be somewhere else, doing something completely different. Some have referred to this as time travel or being able to leave the body.)

"Disassociation" is now being recognized by mental health professionals as one of the ways some children cope with the horrors of being sexually abused. If the abuse continues for a long time, the child might develop "multiple personalities". By creating a number of separate personalities with completely separate memories and experiences, the child can cope a little better with a life that may be too difficult for one person to bear.

The separate personalities belonging to one person may be highly developed. Research in Southern Canada and the United States has found that the different personalities in one person could have pronounced differences in values, skills, memories, and physical and intellectual attributes. One personality may suffer from severe allergies, such as being allergic to flour, while another person is able to eat pancakes. Their learning abilities may be different, their memories are different. These personalities experience themselves to be different people and are often not aware that they share one body.

The development of multiple personalities is an extreme case of disassociating one-self from the experience. It is a coping or defense mechanism that some severely abused children have learned in order to survive the abuse. In such cases, long-term therapy is required by professionals who understand the problem and are able to work through the pain.

> "Our children are hurting after going through therapy, I began to understand what I went through. It is sick. Traditionally we are taught not to talk about sexual things. But the fact is that there are a lot of victims in the communities.
>
> We all know there is a connection between suicide, suicidal attempts. Sometimes you just don't want to live because it's so miserable. Sometimes it's so difficult to cope, knowing that I could have had a better life, a better education and knowing that I lost some friends. All this time I kept the abuse to myself, not knowing there were others like me."
>
> A Survivor, NWT, 1990

Victims of child sexual abuse go on to further abuse themselves. Most often, victims will begin abusing chemicals, such as alcohol, drugs and solvents. Some turn to prostitution or begin having many sexual partners. Others may develop eating disorders. Some become adult children, not knowing what is normal adult behaviour. Still others display delinquent behaviour, running away from home, stealing, breaking and entering, not caring when they physically hurt another person. Some hurt themselves by punching, slashing or cutting.

Victims of child sexual abuse suffer terrible emotional pain. They think they do not deserve to live, that they are no good, they are to blame for everything. They have a lot guilt and shame. They think they are ugly. They think they have failed.

Child sexual abuse creates many dysfunctional behaviours and affects every aspect of a victim's life. Many victims do not know what normal behaviour is.

Who Are the Child Sexual Abusers?

A child sexual abuser could potentially be anyone who the child is in contact with. There are no tell-tale signs. Child sexual abusers do not carry a label. Child sexual abusers are both men and women, although the majority are men. In most cases, the abuser has close contact with the child who is being sexually abused. Child sexual abusers often have normal sexual relations with their adult partners.

Child sexual abusers are the rich and the poor from our communities. They are of all ages. They come from every religious background. They are the educated, the worldly, the illiterate, the uneducated. Child sexual abusers are from every racial background.

Young child sexual abusers (10 year old boys to teenagers) are on the increase in the North. Their victims tend to be even younger.

In the North, young child sexual offenders often end up in the same group home as the victim because of a lack of treatment facilities. If there are no personnel in the home who are trained to treat child sexual abuse, this poses a major problem.

Myths About Inuit on the Issue of Child Sexual Abuse

> "I guess people's perception of the North is of poverty, alcoholism, welfare, violence and crime. Sexual abuse is just another of the things that would go hand in hand with the negative perception. You can compare it to people's perception of welfare recipients. They are lazy no good people. Obviously this is inaccurate perception but it exists. People with no power or control over their existence are always looked down on."
>
> Social Worker, Arctic Canada, 1990

One of the most disturbing findings of this research is the existence of the myth that child sexual abuse was, or is acceptable in the Inuit culture. It is clear from recent statements by Inuit organizations and leaders that Inuit believe that child sexual abuse is totally unacceptable.

Perhaps what is more disturbing is that the justice system has made statements which could lead people to believe that child sexual abuse is commonplace in Inuit culture. In recent years, some Inuit child sexual offenders have been given very light sentences in court rulings. The courts have, at times, accepted interpretations of traditional Inuit values and attitudes which perpetuate this myth. The three common themes that have been presented are:

"Child sexual abuse is normal in Inuit society."

"When an Inuk girl starts her period, she's ready for sex."

"Inuit do not believe that it is wrong to have sex with young girls."

Traditionally, Inuit believed that children should be children until they were ready to take on responsible roles as providers of life. These responsibilities included learning to hunt, to cook, to sew, to build snow houses, to train a dog team, to learn the arts of oral traditions — dances and songs, to learn to parent, to live in harmony with fellow Inuit, to share, to survive, to cooperate, and to contribute to the well-being of the community.

Many of the traditional values related to respect and the value of children in our society must be reaffirmed. We have a responsibility to protect our children and they have a fundamental right to grow up in a world free of abuse.

Ownership of Child Sexual Abuse is a Requirement to Heal the Inuit Community

When Inuit at the personal, community, regional, and national levels state that social problems like child sexual abuse are best dealt with by the social workers and mental health specialists; we are giving a very strong message that we want to be taken care of by the state. When we, as Inuit delegate something that affects our lives, we also give away our power and our ability to respond to social problems with a cultural perspective and therefore, our ability to govern and control our daily lives.

The consequences of not taking ownership of the problem is having to adopt healing and treatment from another culture which will have different values and different traditions. This is not bad in itself, however not acknowledging the problems is giving away the opportunity for the management of our lives and those of our children. The choice is ours. To acknowledge the problem and to do something about it. Or to deny that we as Inuit, have problems of child sexual abuse in our communities and thereby deny our communities the chance of being truly healthy.

Our history in dealing with child sexual abuse is not one to be proud of. Society did not acknowledge it as a problem. It is still hidden. All sectors of society and the various institutions foster the myths that sexual crimes and especially child sexual abuse are not as widespread. Society still turns a blind eye to it, and in fact even promotes it through pornography and violence through television.

Child sexual abuse, as a result, has been neglected by the treatment facilities and the politicians and bureaucrats who create the policies to run the treatment facilities, and who allocate the financial priorities on a yearly basis.

> "I think back on the men who have been sentenced to jail for their sexual abuse in the last three years and have served their time but not have received treatment. These men are still at risk to re-offend. Our judicial system is failing to protect children just by the fact that they are releasing offenders without treatment."
>
> A Social Worker, Arctic Canada, 1990

The findings of this research indicate that there are almost no resources for treatment and healing throughout the North.

The only recognized services in the communities are the social workers, the nurses or doctors, mental health specialists and health representatives. Often the front-line workers are the social workers in the communities, who in some cases have not dealt with their own child sexual abuse or are so over extended with other responsibilities, such as Social Assistance, other Child Welfare Matters, Probation Reporting, Estates, and Suicide that they are unable to deal with the special needs of child sexual abuse victims; offenders and families.

> "There are no resources in our community available for the offenders, family or victims. We are so damn busy that you don't even have time to record your overtime or think how tired you are because if you do you might come apart at the seams."
>
> A Social Worker, Arctic Canada, 1990

Where there are treatment facilities in the larger centres, they are often over-booked and have long waiting lists. One mother and a child were still waiting for space for sexual abuse counselling three months after they had requested the counselling. There are also Clinical Assessment teams who assists with the assessment of children. Unfortunately, in most cases, they are in far-away centres.

As a society, we are just beginning to recognize the need to treat the social problems like alcoholism, and child sexual abuse. In the past, these two social ills have been misdiagnosed. So it is important to understand the problem, otherwise, our solutions might be wrong.

In the past century, we have gained a vast understanding of treating and healing the human body from an array of illnesses. It is just as important to recognize the different aspects of the human being, the emotional behavioral, and spiritual dimensions. Being sexually abused as a child affects your mind, your spirit and your body. In order to become whole, it is necessary to receive specialized treatment which deals with all of these aspects.

Conclusion

Child sexual abuse is not a new problem in our communities, but it is one that we have not openly acknowledged.

It is difficult to accurately determine the extent of the problem, but the results of our own research confirmed that child sexual abuse is indeed a problem, and there is no reason to believe that the magnitude and extent of the problem is greater or lesser among Inuit than among the Canadian population.

There are cultural/community factors which make it difficult to report child sexual abuse in Inuit communities and it is often the case, that disclosures or reports are made only when the situation becomes extremely serious (i.e., attempted suicides; contracting of venereal diseases in young children). Once a child sexual abuse is reported, there are little/no services available to counsel victims, offenders and/or families. The professionals in the community who often deal with disclosures are the social workers, police officers, and the nurses. Often they are over-extended or untrained to meet the special needs of child sexual abuse cases. In severe cases, the victim is sent away from the community to receive counselling in southern centres, and such decisions create additional suffering for the victim. Often when an offender is incarcerated, he/she does not receive counselling services. He/she is released back to his/her home community (because there is nowhere else to go) to become a greater threat to the safety of the community's children.

The three most disturbing findings of this research are that an extremely high percentage of respondents knew of unreported child sexual abuse cases in their communities; that there are non-Inuit professionals in the North who have publicly stated or implied that child sexual abuse is an Inuit cultural practice; and that there are no/little services available to child sexual abuse victims, offenders and families in the North.

Child sexual abuse has left its mark on Northern Canada and the effects on our children and our communities are profound.

Dealing with child sexual abuse in an effective manner means radical changes in the way we see children. Children need to be viewed as our precious investment for the future and therefore, their well-being, their protection and their safety must come first.

As communities, as Inuit, we must acknowledge that child sexual abuse exists — this is the first step towards healing. We must also recognize that solutions for child sexual abuse are long-term and multi-faceted and its resolution will require effort from everyone. Individuals and Inuit organizations have a responsibility to inform themselves of the issue and develop strategies and actions to eliminate child sexual abuse. Governments must view the elimination of child sexual abuse as an urgent matter and place it on the forefront of their agenda. They must show a commitment to its resolution by developing long-term strategies and programs, in consultation with Inuit, even during times of tight economics restraint. The courts have a responsibility to ensure that the public understands that child sexual abuse is the most atrocious of crimes — crimes which will result in the highest penalty under the law. Mandatory counselling must be given to offenders so that when they return to our communities, which they will, our children will not be endangered. Treatment facilities with trained personnel must be created in the north to help the victims, families and offenders of child sexual abuse.

Child sexual abuse is not a new problem in our communities but our battle against it is . . . and if we are to win that battle, we must do to collectively.

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This bibliography was prepared by the NWT Status of Women Council/Women's Directorate, in December 1989. While this list does not include everything written on the issue of child sexual abuse, these books will provide a very good starting point to anyone wishing further information on the subject. We would like to thank the NWT Status of Women Council/Women's Directorate for sharing this list with us.

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The Criminal Justice System Response to Sexual Abuse: Is it Appropriate? Are There Alternatives?

Catherine M. Twinn and Dexter B. Dombro
Slave Lake, Alberta

The term "child sexual abuse" is a new name added to our legal and social lexicon. It has only recently been socially constructed to describe a situation that has always existed, but never been thought of in the manner in which we think of it now. The subject matter is as old as mankind. Under the general heading of sexual offences it was called by different names: incest, rape, unlawful sexual intercourse with girls over 13 and under 16, unlawful sexual intercourse with girls under 13, indecent assault on females, technical assaults on consenting adolescent girls and indecency with small children. This new term of "child sexual abuse" has two possible origins.

The first is that this type of behaviour is always latently possible in all families, because as humans we have a sexual drive. Further, our social structure has been permissive towards certain sexual behaviours, and the result is not and cannot be described as a pathology. The behaviour is not "sick" behaviour, but is simply viewed as morally wrong and criminal. This answer makes it a matter for denunciation, and requires that the Criminal Justice System be used to control and punish against a social behaviour within families that is to be strictly prohibited. Rigorous prosecutions and criminal penalties are the backbone of this response.

The second answer supposes that "child sexual abuse" is not a matter endemic to our families, nor a matter of social practice, but rather a consequence of dysfunctional families. This requires that one seek to identify the causes of the dysfunction, such as the possible prior abuse in childhood of the current perpetrator. As such, it becomes a pathology requiring treatment, and the primary response does not necessarily belong within the Criminal Justice System. If, in our response, we decide to mix the two answers, it is important for us to know why we are mixing them.

As a Northern Alberta lawyer, I am often confronted with dysfunctional families who come before the criminal courts because of the issue of child sexual abuse. The objectives of the Criminal Justice System response to this issue are clear. Punishment of the offender is legislated for in the *Criminal Code* (hereinafter *C.C.*). Superficial reading suggests that protections exist for the victim and the family, but I would question whether this isn't really an extension of control over the offender (see for example s.150.1 *C.C.*). Is this response appropriate, given the high number of dysfunctional families in Northern Alberta? It is my submission that the appropriate alternative to penal consequences, and the primary aim of any legislated response, should be treatment of the victim, the abuser and the family, if we as a society are going to resolve what has been described as North America's number one social problem. Social problems require solutions which must emanate from changed ways of thinking and behaving. Legislative sanction cannot produce these social changes although legislation can attempt to enforce the social standard.

There is a modern mind-set that supports the contention that the courts should mediate every crisis society is faced with. This simplistic approach does not consider the human tragedy that is taking place, and assumes that our adversarial system of justice can ameliorate when in fact it may be exacerbating the problem. The statutory response to child sexual abuse found in the *Child Welfare Act*, legislating an adversarial response by Social Services and the courts, ignores those cases where abusers have admitted they need help and where the families are inextricably linked by blood. It ignores the steps taken by families to deal with a situation that cuts to the very core of their well-being and social identity. Instead of treatment for the victim, the abuser, and the family, they are met with penal consequences, adversarial court action, removal of the child and the abuser from the family home, loss of economic security, and a host of psychological and social consequences.

This does not mean that the courts and the Criminal Justice System cannot be involved in resolving these difficulties, however, the courts' role should not be a stand alone role, nor, in many cases, should it play a primary role. For our approach to change, there have to be legislative and institutional changes that acknowledge the "sickness/treatment" model as being appropriate, while preserving aspects of the "punishment/penal" model currently in use. A good starting point would be the inclusion of a preamble in the *Criminal Code*.

Such a preamble could enshrine as a fundamental principle that the Criminal Law only be applied where other means of social control and treatment are inadequate or inappropriate. While there are interpretive problems with such a preamble, it would lend guidance to Parliament when it deals with social problems that are complex and involve more than a mere criminal dimension. Opposed to this approach is a long history of reliance on the Criminal Law for solutions to social problems, and a political unwillingness to exchange penal convictions with treatment of offenders as an alternate method of deterrence, rehabilitation and social justice. To date, our society has been "crisis-interventionist" orientated. This acts as a further bar to adopting the "sickness/treatment" model. In our rush to react to

child sexual abuse through criminal sanction, we as a society are sacrificing concepts of fundamental constitutional importance to the expediency of courtroom adjudication and comfort levels advocated by special interest groups. Charges of child sexual abuse have become an indictment of guilty until proven innocent, by virtue of the unrestrained powers of Social Services, coupled with the devastating social stigma and consequences (employment) that child sexual abuse carries with it. The mere allegation is generally enough to brand an accused without further enquiry.

Against this backdrop our Common Law and legislated rules of evidence have been modified to allow for easier prosecution of child sexual abuse cases. Yet even if videos (s.715.1 *C.C.*), screened witness booths (s.486(2.1) & (2.2) *C.C.*), publication bans (s.486(3) *C.C.*), unsworn testimony (s.16 *Canada Evidence Act*), absence of corroboration (s.274 *C.C.*) and rehearsals with anatomically correct dolls by social workers are desirable from a prosecution perspective, they do not remove the trauma of rending a family apart before strangers in the very public forum of our criminal courts. Nothing in this process assists in furthering treatment or therapy of either the victim or the abuser. Anyone who has sat through a young girl's testimony, requiring her to describe penetration of her vagina in public, while watching the accused rely solely on legal mechanisms that force him to deny the allegations, to belittle them and to misconstrue them, knows that the Criminal Justice System approach should not be the primary response of society to this problem.

Many lawyers and judges recognize that the courtroom is an inappropriate forum for the problem solving and healing required by many of these families. Yet the question most frequently asked by those same professionals is what better alternative is there to the Criminal Justice System response? The answer, if we do not make fundamental institutional changes, is none. There is currently only limited therapy and treatment available to abusers, and what little is available can only be accessed with great difficulty by rural residents. In addition, the focus of Social Services has been interventionist and adversarial, regardless of the feelings of the families involved.

This has contributed to the destruction of family units, without replacing what many consider to be one of the basic building blocks of society. There is currently no legislative or funding focus on helping dysfunctional families deal with alcoholism and substance abuse, with unemployment and poor education, and with the consequences of dysfunctional family histories in the background of the adults involved. The entire social support network is geared towards "reacting to" the problems that arise after the fact. While I have no doubt that a pound of prevention is required, that is still preferable to a pound of cure. We need a social vision based on rational concepts and common sense, the aim of which is to solve problems.

There are excellent models in existence. The 'Institute for the Community as Extended Family (ICEF)' in Santa Clara County, California, has developed a child sexual abuse treatment program that has managed to successfully treat offenders without destroying their families. In fact, the program has been so successful, that

the recidivism rate is only 1 percent. The program has now been copied by 150 similar programs around the world, including one in the Soviet Union. It is quite clear that the recidivism rate is considerably higher in places where the criminal penal model is the sole element dealing with child sexual abuse.

I believe that many judges are keenly aware of the need for treatment of people coming before them. Yet judicial discretion to sentence is severely limited by the *Criminal Code*, which is almost totally penal in its focus (see the penalties in s.151 *C.C.*, s.152 *C.C.* or s.153(1)(b) *C.C.* for instance). In theory, our sentencing objectives aim to punish, deter (both specific and general), denunciate and rehabilitate. In practice, our penal system has failed to deliver "rehabilitated" offenders. There is no discretion to sentence offenders to compulsory treatment, and the satisfactory completion thereof. This is generally left to probation officers, who in the rural areas of Northern Alberta are constrained by the very limited access to treatment and counselling resources. In addition, probation loses its authority over the offender upon expiry of the probation period, which is often not designed to meet the time required to complete treatment. Similarly, jail terms without probation are often short in duration, as little as one sixth of the actual sentence for first time offenders, so that someone sentenced to 30 days in jail may in fact only serve two weekends, which is insufficient time for any psychiatric or psychological assessment, let alone the institution of proper treatment.

A sample case study is appropriate to illustrate an average instance where the criminal and child welfare system have failed the victim, the accused and the family:

> The wife of a Northern Alberta resident discovered that her husband had attempted sexual intercourse with their 14 year old daughter. There were eight children in the family, but this was a one time incident. When she confronted him, he admitted his act and was extremely remorseful, telling his wife that he needed help. The couple phoned Social Services, who arrived later that day and removed the daughter from the home. They were insistent that he immediately leave the matrimonial home and seek counselling elsewhere. After lengthy interviews with the daughter by Social Services, without any third party present, it was established that there had been fondling, but no penetration. Social Services informed the R.C.M.P. some one month later. In the meantime, the accused admitted his guilt in counselling by Social Services, but due to their interviewing and counselling techniques, which were conducted by unskilled staff, he became suicidal and tried to kill himself. He called his wife, who helped him over his depression and had him stop attending counselling by Social Services. The couple retained a lawyer, who advised him to move back in with his family, which he did. The accused then appeared in court and plead guilty, (i) because he desperately wanted treatment, which he would not be able to get if he plead not guilty, since the matter would then drag on for a long time, (ii) because he didn't want his daughter to have to go through the court system, (iii) because

he wanted to admit his guilt, and (iv) because a lengthy court battle would do irreparable harm to his family. He was sentenced to 30 days in jail, to be served intermittently on weekends, together with 15 months probation. Probation was only able to arrange a weekly group therapy session by the Forensic Assessment Community Services in Edmonton, requiring lengthy travel twice a week, without any additional support in his home community. The further North, the less possible even this type of treatment becomes. The jail term had little impact, as he only served two weekends, which didn't allow for any treatment. Social Services' involvement resulted in the loss of the accused's self-employment income, which placed the family in a deficit position. Despite Social Services insistence on removing him permanently from the home, the wife kept the matter from the other seven children, and because of the offender having sought treatment independently, they are once again functioning as a family unit. This type of scenario is not unusual in Northern Alberta, and seriously calls into question the value of the Criminal Justice System response.

There appears to be no differentiation between European or Native ancestry Canadians where child sexual abuse is concerned in the North. There are admittedly cultural differences when it comes to how communities view this offence, but in all cases there is acknowledgment that treatment and the preservation of the family unit are foremost on peoples' minds. The question therefore arises as to whether we as a society, and the institutions that govern us, can muster the courage to alter our method of dealing with this issue. We know that there are rapids ahead, and that some branches in the river may lead nowhere, but we can be equally certain that the current approach does not answer the needs of our society, even if we are not willing to accept the "treatment/sickness" model as being appropriate.

I want to caution against assuming that the problem is created by "state intervention". What I wish to stress is that the intervention of the state is inappropriate in the way it is carried out, and often creates more problems than it resolves. State intervention, while well meaning, also suffers from the same confusion that dogs public perceptions of this issue. That confusion goes directly back to my opening point about two possible responses to a newly named phenomenon. Rix G. Rogers, Special Advisor to Perrin Beatty, Minister of National Health and Welfare, produced a lengthy report called *Reaching for Solutions*, that deals specifically with the problems associated with child sexual abuse in Canada. A reading of the report shows a desperate attempt to mix both responses, but without focusing on which answer is paramount.

The result is a hodgepodge of recommendations, none of which specifically focus in on either model, but rather try to meet both. Yet I have no doubt that an action in one arena will cancel out any benefit derived from the other. If we as a society are going to continue to place our faith in the Criminal Justice System, and especially on the imposition of penal consequences to offenders, then to my mind there is little functional value in promoting therapy as an afterthought. This was the

approach taken following the Badgley Report in 1984, entitled *The Report of the Committee on Sexual Offences Against Children and Youths*. That report appears to be the origin of many of the offences now found in Part V of the *Criminal Code*. If, on the other hand, the solution lies with the "sickness/treatment" model, then there is an appropriate place for the Criminal Justice System response within that model. It can be used as a coercive alternative, as a response to non-family situations, and as the catching ground for repeat offenders who cannot be reached with the treatment model. As such, the Criminal Justice System (punishment/deterrence) becomes the secondary focus that kicks in where moral and social factors begin to outweigh the benefits the therapeutic model offers to dysfunctional families.

As a lawyer, I cannot ignore the implications of recent changes to the *Criminal Code*. The naming of "child sexual abuse" has brought with it a shift in our justice system away from the concept of innocent until proven guilty. This shift has been especially troubling to some judges, who are keenly aware of the importance of providing procedural safeguards to persons charged criminally by the State. Our Common Law, and the rights enshrined iin the *Canadian Charter of Rights and Freedoms*, *Constitution Act, 1982*, have a long and tested history behind them. Little thought appears to haive been given to the damage that may be caused by this shift.

Several recent incidents confirm the dangers of letting our legal procedural guard down when allegations of child sexual abuse are levied. In the December 17, 1990, issue of *Alberta Report*, an article appeared called *Framing Daddy*, which details the tragic consequences to fathers accused falsely of child sexual abuse in custody disputes. Social Service investigations into "child sexual abuse" have also risen dramatically since the naming of this phenomenon. Credible cases of child abuse have, since 1986, hovered around the 1,700 mark per year in Alberta, yet Social Service investigations have increased, since 1986, from 3,992 to over 10,000 cases in 1990. How many of these investigations involved child sexual abuse is unknown. What is clear is that the numbers of credible incidences are dwarfed by the number of cases that were based on false allegations. Not only does this swamp an already overloaded court system, but the numbers numb the reaction. Two decades ago prison sentences were the common response. Today, monetary fines with probation are common.

The November 19, 1990, issue of *iAlberta Report*, in an article entitled *Teachers' Pests*, tells the story of a 41 year old teacher whose career was wrecked, even after he was acquitted on charges of child sexual abuse, because four girls in his class resented his disciplinary stance. To spite him, and aware of the general stigma associated with child sexual abuse, false allegations were made. In 1990 alone, there were 10 incidents where teachers were falsely accused of child sexual abuse. The Alberta Teachers' Association is now advocating that if a teacher is charged with child sexual abuse, that teacher should enjoy the same right to be sheltered from public scrutiny as is afforded to the complainants (see s.486(3) *C.C.*). This position is also supported by the Canadian Teachers' Federation, which

has lobbied the federal Department of Justice, without success, for the past two years. That false allegations are increasing is becoming an issue. Editorial writers are starting to address this unwanted side-effect. A local example is the March 19, 1991, column by Glenn Martin of the *Edmonton Sun*.

Another case study illustrates the dangers of adopting the views of special interest groups, whose complaints of insensitivity on the part of the Criminal Justice System to victims of abuse has led to some measured success in altering the rules of procedure. The following story occurred in a remote Northern Alberta community in 1989:

> The local school had a new guidance counsellor who, at some public meetings, had admitted that she was a victim of child sexual abuse during her childhood. She had a "magical" list of symptoms that revealed conclusively, to her mind, whether a female child was a victim of child sexual abuse. There were also three girls in attendance at that school, who came from a dysfunctional family that Social Services had voluminous files on. The girls were known child prostitutes. Their general demeanour came to the attention of the new guidance counsellor, who decided that their downcast eyes and generally asocial behaviour were clear indicia of child sexual abuse. The counsellor immediately started to interview the girls on a regular basis, without any success. Finally, when one of the girls came to school wearing new clothes one day, she was called in by the guidance counsellor who subjected her to such a thorough and inquisitorial interrogation that the girl, by her own subsequent admission, confessed to anything the guidance counsellor asked or wanted to hear. The net result was that criminal charges were brought against several men in the community. My client, in his early sixties, was immediately suspended from his job as a school janitor without pay, and fired soon thereafter. He had been a very sick man prior to the allegations, and was out of the community on most of the dates contained in the allegations. It soon became clear that he couldn't have been involved. A signed written statement from the complainant's sister was produced, resulting in the Crown prosecutor calling no evidence, which in turn led to a dismissal of the charge. The remaining men, when the matter came to trial, were also acquitted because the alleged victim was unable to provide any testimony, and fled the courtroom in tears. My client's life was ruined. A broken man, he has been denied employment, is continuously named as a sexual pervert in local poison pen letters, and as a result has suffered a rapid decline in his health and mental well-being, leaving his wife to be the sole provider in their declining years. The school authorities' attitude has also been unforgiving, with them hiding behind their "statutory obligation" under s.3(1) & (2) *Child Welfare Act* to report any suspected case of child abuse, regardless of what evidence supports such an allegation. The question asked by his family was this: "What has our society come to when an 11 year old,

> dysfunctional child, has the power to destroy, without evidence, the life of a law abiding 61 year old citizen?"

I view the focus by special interest groups on the procedural rules of the Criminal Justice System to be erroneous and dangerous. As a society that respects civil liberties, we have to find a balance between the procedures used to discover the truth and the rights of the individual. The energy currently being exerted to modify the rules of evidence would be better spent if focused on the treatment of the victims and the abusers.

The victim has been ignored in the traditional Criminal Justice System response. But the remedy does not lie in making adjustments to the criminal process, which has evolved over centuries to insure procedural fairness in as far as is possible. Rather, society has to recognize that serious harm may have been done to the individual, and the victim should be able to easily access therapy and treatment. It is, to my mind, unconscionable and wasteful, that society can spend thousands of dollars processing each criminal charge, and yet at the end of the day not one penny has gone towards addressing the harm caused by the crime. In property offences, the courts have broad jurisdiction to try and put things back to where they were. Why do we as a society not place the same value on making amends for the harm caused to victims? It is probably inappropriate for government to develop the programs needed, as the private sector and non-profit groups are more versatile in meeting these needs. It would mean that "making amends" becomes a fundamental component necessary for the rehabilitation of the offender, who could work to pay for his and the victim's therapy.

This is neither unrealistic nor far fetched. Alcoholics Anonymous, as one of its nine steps, requires that the substance abuser "make amends", as long as the act of making amends does not cause further hardship to the person harmed by his or her previous behaviour. It is an important component in the treatment of chemically dependent people. To extend this principle to child sexual abusers makes common sense, and is a more appropriate response than the denial of guilt that our adversarial Court system requires of those charged criminally.

I want to make it clear that I draw a distinction between cases of abuse that are intra-family, and those that involve outsiders. The more remote the abuser, the more likely it is that the Criminal Justice System should play a role. If the family is an institution that we, as a society value, then degrees of consanguinity are an important indicator of what approach should be taken. I would note that the live-in boyfriend who abuses the common law spouse's child is a more remote person than a biological or adoptive father. Blood is forever, whereas casual relationships can be dealt with appropriately and effectively through Peace Bonds (s.810 *C.C.*) and civil Restraining Orders without having the same impact on the family unit. Therapy has to allow for the making of amends, and the reintegration, wherever possible, of the parental relationship, if dysfunctional families are going to heal and solve their problems, thereby becoming functional units in society.

The cost of not treating these victims is enormous. Statistically, there is evidence that many will become the abusers of tomorrow, though a "causal" connection cannot be made simply from statistical correlations. Some, while they learn to cope and would never dream of sexually abusing their own children, become chemically dependent, or exhibit other problems that become an ongoing drain on society. The cost of not treating the victims and the abusers means that rather than trying to faze out the incidents of dysfunctional families, we will be applying *Criminal Code* sanctions in order to make the problem go away, without in any way addressing the causes or the results of the problem. Given our history of trying to deal with prostitution and drug abuse by means of criminal sanction, I cannot help but be sceptical.

Continued application of criminal sanction will simply be a preservation of the status quo. As a lawyer, I deal with cries for help to which no answers can be found within the Criminal Justice System. A case in point is the November 21, 1990, article in the *Edmonton Journal* about the mother of a 14 year old prostitute who wants her child restrained in an institution where she can receive treatment. But s.42(3) & (7) *Child Welfare Act* only allows for 30 to 90 day orders where a child is deemed dangerous to themselves and others or exhibits a mental disorder. In the case of this girl, a judge ruled that the child did not meet those criteria, and the child has been released again. This is a failure that goes to the core of the problem. It is obvious that the Courts are not the proper forum for these issues, unless there are fundamental changes.

One possible solution would be the implementation of an alternative measures approach, similar to what is now contained in the s.4(1) *Young Offenders Act*, but with considerably more leeway. It would allow parents, victims, abusers, Social Services, the police and the parties' respective legal counsel to steer the victims and the abusers into treatment programs, and only use the Criminal Justice System as a backup or coercive alternative. Voluntary committals would require the compulsory completion of treatment programs and educational activities. Coercive or criminal sanctions would also have to be modified so that rather than being time based, they are oriented towards the completion of treatment before making an abuser eligible for release, probation or parole.

If I am wrong, and child sexual abuse is not the result of a pathology, but is rather an endemic social activity, I would still question whether the total penal approach is appropriate if the long term social goal is stable families. The mere fact of prohibition did not stop the production and consumption of alcohol. Outlawing prostitution has not stopped prostitution. Even if the status quo is preserved, it does not resolve the issues of balancing the rights of the individual against the interests of the State in prohibiting this newly named behaviour. Changes are required at various levels, and for several reasons. It therefore behooves all of us to stand back and take a second look at our position on these issues, and identify what it is we really want to accomplish at the end of the day. Can we truly justify and totally rely upon the "penal/punishment" response?

Given the varying degrees of severity within the offence, the frequency of a wrongful act, the reality of dysfunctional families, the problems of chemical dependence that are so pervasive in Northern Alberta, and the need to retain and protect the balances that we all expect when our courts adjudicate on any criminal matter, and the obvious need for our society to respond in a "positive" and "humane" way, I for one do not believe in sole reliance on the "penal/punishment" model.

*** The reader may wish to refer to the following:

References

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Helping People Change Themselves: A Critical Approach to Family Life Education

Carol A. Morgaine
Family Studies
University of Alberta

Many contemporary families are in trouble. While aspects of family life and relationships have improved during the last century, it is rare for a present-day family to have remained unscathed by the far-reaching effects of additive behaviours, domestic violence, poverty, mental illness, suicide, or teenage pregnancy. True for the dominant members of the culture, it is becoming obvious within Northern and Native populations as well. Almost daily we read of Arctic communities' struggles to intervene against the ravages of domestic and child abuse, incest, addictive or compulsive behaviours, violent lifestyles, and suicide. We are all too familiar with the evidence. We need ways to begin disentangling the disarray — especially in light of the current research that suggests that individual dysfunctions and pathologies may be intergenerationally transmitted within family systems (Bennett, et.al. 1987; Cohen & Clark 1984; Earls, et.al. 1988; Goldsmith & Alansky 1987). Many are actively seeking solutions and answers. This seminar series has provided a forum for many who have discernment as to the everyday lives of Northerners and Natives. I, too, am here to discuss my insights into these serious and complex situations. My profession, home economics and family life education, is committed to improving the every day lives of individuals and families. As such, we have sought to contribute with answers and solutions to the problems. Throughout Canada, home economics courses in junior and senior high schools have featured classes entitled: Family Relationships, Child Care, Family Life and Technology, Challenges and Choices, Canadian Heritage Cookery, and Personal Money Management (Peterat, et.al.,1988). However, in many ways, our efforts to help people and families change themselves have not been any more successful than the efforts of other human services professionals. The problems, if anything, have multiplied. During the next few minutes, I'd like to explore commonly held assumptions about helping people change themselves. After providing specific

examples used by family life educators, I will offer the rationale for a paradigm shift. I will be suggesting the need for critical approaches in family life education.

Prominent Assumptions About Helping Others Change

As the scientific and industrialized revolutions evolved, new ideas about how people make personal changes emerged. This era began when society's shortcomings were obvious and there was a desire for improvement in the moral actions and everyday lives of individuals (Florin & Dokecki 1983). Scientism and industrialization offered a framework of order and hope for eliminating social corruption, crime, and poverty. As these promises gathered momentum, accompanying ideologies and values became obvious.

Individualism

Individualism began to be glorified in that self-help and entrepreneurial outlooks on life were perceived as the answer to everyday problems (Bellah, et.al., 1985). Individuals were expected to supersede social structures and look within themselves for the answers and solutions (Kluegel & Smith 1986; Prilleltensky, in press; Ryan 1971). In preparation for these assumptions, children were taught the philosophy of individualism early in life. Parents began to have high expectations for their children and family interactions began to be laced with messages that taught children that their problems were the result of their own inadequacies (Miller 1983; Morgaine 1991).

Efficiency and Standardization

Values like efficiency, standardization, bureaucratic organization, and conformity also began to infiltrate accepted ideas about people, their problems, and change (Apple 1980; Edelman 1984; Lawton 1982; Miller 1983). People with problems were seen as being able to be helped by the advances realized by scientism and industrialization. As a result, "human technologies" (Sarfatti 1977) were born. Included within "human technologies" were the fields of medicine, community services, education (including home economics and family life education), and social work. Positivistic research began to be conducted in order to discover the laws of human nature and suggest solutions for making change. "Human technologies" sought to help others by applying the findings of this research in ways which incorporated efficiency, standardization, bureaucratic organization, and conformity. It was hoped that as these laws and solutions were applied to people, everyday life problems would disappear.

Professionalism

People working within human technology fields gradually became known as professionals. The label "professional" implied a prolonged period of training, a specialized and theoretical knowledge base, a service orientation, and conferred power, privileges, and prestige (Sarfatti 1977). Professionals were expected to apply the knowledge and skills from human technology as they attempted to helping

people make change. Likewise, recipients of professional assistance were expected to endure any existing bureaucratic inconvenience and conform to the ideals which had emerged from research. Professional efforts were expected to affect personal change which would, in turn, keep the lower forces of human nature in control and thus, improve society.

Family Life Education and Change

Family life education is a profession dedicated to helping "individuals and families develop their capacities as present and future family members and meet their needs for family living over the life span" (Arcus 1990 p.1). Its goals include helping families and their members to: "1) gain knowledge about concepts and principles relevant to family living; 2) explore personal attitudes and values and understand and accept the attitudes and values of others; and 3) develop interpersonal skills which contribute to family well-being" (Arcus 1990, p.1). Brown (1980) refers to family life education as a personal service profession. In other words, it is committed to helping others make change in their lives (Halmos 1970).

Historical Influences

However, like most human technology professions, family life education emerged during the scientific and industrial revolutions. We, too, have been influenced by idealogies of individualism, professionalism, and efficiency. As a result, we have relied upon positivistic research to provide laws of human nature and direction for our professional practices. Individual and cultural differences have been given lip-service or ignored. We have assumed that individuals, themselves, are responsible for change. We have not explored the ways in which societal structures contribute to and perpetuate individual and family problems. Thus, we have incorporated the dominant cultures' paradigm for helping people change.

Professional Efforts Toward Change

In keeping with this paradigm, we have categorized families as those who have problems and those who don't have problems (or those who are capable of keeping their problems under control). Families with problems have been viewed as a threat to our seeking-to-improve-itself society. Thus, we have tried to inoculate families with information designed to help them resist problems. We have focused on teaching the skills that are assumed necessary for achieving society's ideals and encouraged families to strive for perfection (Fossum & Mason 1986). We have believed that "by manipulating certain variables, certain beliefs and actions can be produced" in our learners or clients (Brown 1980, p.63).

We have assumed that if we, as professionals who possess the knowledge, pour this knowledge into our learners, changed lives will result. Of course, our learners have been perceived as relatively passive. Freire calls this approach the banking system:

> "In such a system, the teacher teaches and the students are taught; the teacher knows everything and the students know nothing; the teacher thinks and the students are thought about; the teacher talks and the students listen — meekly; the teacher disciplines and the students are disciplined; the teacher chooses and enforces his choice, and the students comply; the teacher acts and the students have the illusion of acting through the action of the teacher; the teacher chooses the program content, and the students (who were not consulted) adapt to it; the teacher confuses the authority of knowledge with his own professional authority, which he sets in opposition to the freedom of the students; the teacher is the Subject of the learning process, while the pupils are mere objects". (Freire 1970, p.59)

Our intentions have been good, but we have unknowingly succumbed to societal influences that are, in reality, antithetical to our purpose and goals.

Reliance on Instrumental/Technical Paradigms

An analysis of these professional efforts reveal our reliance on an instrumental/technical paradigm. Having evolved out of the natural sciences, human problems are simply analyzed according to "scientific" principles. Therefore, the discovery of cause and effect relationships is considered the first step for controlling human behaviour (Braybrooke 1987; Carr & Kemmis 1986). As these relationships are discovered, professionals can convert the findings into programs for learners. It is expected that knowing will then occur and action — or life change — will follow (Fay 1977).

The instrumental/technical paradigm also assumes that there is a single reality of life which is independent of human uniqueness. Therefore, knowledge acquired through positivistic research is assumed to be applicable to all individuals. In summary, the application of scientific knowledge is perceived as able to control and shape human action. Therefore, an instrumental/technical paradigm is used as a catalyst for change.

Applications based on an instrumental/technical paradigm often incorporate behaviouristic methods designed to control human interactions and reform thought processes. Family life education programs based on an instrumental/technical paradigm usually try to teach families how to achieve the "ideal" family life, as defined by the dominant members of society. These family life education programs focus on teaching skills and methods, such as how to communicate with and discipline children; or how to create a financial plan. Instrumental/technical family life education applications, of course, assume that professionals are needed to conduct the programs and disseminate the knowledge. Instrumental/technical approaches for making change have been quite popular with families who appear to be problem-free and can be effective in many areas of family life education. Whenever individuals or families realize that specific changes are needed but lack the necessary information, skills, and methods to accomplish the desired changes, instrumental/technical paradigms may be useful. However, they may offer limited help for many individuals and families in our contemporary societies. Those who

have had others mandate their change may experience these instrumental/technical approaches as condescending, disrespectful, or power-laden. These learners or clients are often labelled resistant. Others whose life experiences and values differ from those held by members of the dominant culture may likewise find instrumental/technical applications unhelpful or even offensive. Still others who are caught in the snares of limited attitudes, compulsive behaviours, and destructive intimate relationships may find that instrumental/technical programs are quite simplistic.

New Paradigms Needed

Unfortunately, an indiscriminate use of instrumental/technical paradigms may be hindering an exploration of alternative approaches which incorporate macro-social and macro-sociopolitical perspectives (Albee 1981; Fay 1977). As has been previously mentioned, an instrumental/technical paradigm is asocial in that it focuses on the individual (Prilleltensky, in press). Individuals are expected to analyze their situations, look for solutions, make the appropriate changes, and proceed along the pathway of life. Social-political factors are neither considered or addressed. Theoretically, family life education programs consider micro-social variables or the group or systemic aspects of an individuals' life, such as interpersonal conflict, and family roles or rules. However, inquiry into micro systems may not be adequate. New paradigms are needed which can enable us to address the macro-social and macro-sociopolitical influences that are hindering efforts towards change (Kuhn 1962; Prilleltensky 1990; Rappaport 1981; Sampson 1978).

Critical Social Science Paradigms

A critical science paradigm for research and practice is virtually unknown within the field of family studies (Brown 1984; Osmond 1987). However, Fay (1977) claims that critical theories are useful for elucidating the relationships between oppressive societal conditions and individuals' everyday actions. The term critical "refers to the potential people have for self-reflection and self-determination in a social structure" (Coomer 1984, p.35). Critical theories offer explanations of "the relations between social conditions, intersubjective interpretations of those conditions, and participants' actions" (Comstock 1982, p.388).

Emerging from a marriage between philosophical paradigms and psychoanalytic theories, critical social science views individuals as actors influenced by their surrounding ecological systems (Jay 1973). Critical social scientists, then, perceive change as necessarily involving individuals, micro-systems, macro-systems, and macro-sociopolitical systems. While individuals are seen as needing to change, they are viewed as capable of self-selecting any changes made. They are also encouraged to become active agents in reconstructing their oppressive societies. Critical social scientists' assume that self-defeating behaviours may naturally evolve when individuals have not been critically reflective of their oppressive ecological systems (Sheham, et.al. 1988). However, most of us have grown up in a world that has not encouraged us to critique our everyday lives or society. During our early childhoods, we learned to make sense of our lives as we interacted with others. In so

doing we formed psychological and cultural assumptions (Mezirow 1985). Creating the fabric of life, these assumptions were impacted by our childhood developmental processes, the language structures of the our culture, the systemic characteristics of our society, and the interpersonal behaviour patterns within our everyday lives (Apple 1980). During our most formative years we were not cognitively able nor usually encouraged to reflect critically on existing life-world rules (Brookfield 1988; Miller 1983). As a result, existing discrepancies and inconsistencies have been woven into the emerging tapestry of our selves. Therefore, in order for change to occur, we must become enlightened about the ways in which society has influenced our self-formation. Critical theories offer a way for people to gain insight about these interactive processes. As critical theories offer explanations about the links between self and society, people have the opportunity to examine their life experiences. Individuals begin to realize how their self-formation has been influenced by systemic structures, societal myths, and hidden assumptions. Often they become aware of fundamental contradictions which are embedded in "ideologically frozen understandings" (Comstock 1982, p.388). As contradictions are realized, enlightenment about self and self in society occurs. As a result, perceptions about self are altered. This process is thought to be the first step toward breaking the cycles which bind individuals as unwilling accomplices to insidious self-defeating behaviours. Central to a critical social science paradigm is change through non-manipulative self-reflection and critical analysis.

Critical Social Science: An Appropriate Paradigm for Native and Northern Families

Critical social science provides an appropriate educational paradigm for individuals who are caught in the strongholds of societal oppression. Therefore, it is appropriate for family life education programs designed for Natives and Northern peoples. Currently, literature and programs are being developed to improve family relationships in the lives of Northern and Native peoples. The Inuit Women's Association of Canada has published two books for dealing with the issues of domestic and child sexual abuse: *Does Your Husband or Boyfriend Beat You?* (Lougheed 1990) and *No More Secrets* (Kuptana 1991). It is certainly important for books like this to be published: they are printed in the languages of Northern & Native peoples and they address Native situations specifically. However, their focus is limited to disseminating information. These publications provide definitions for abuse and advice for women in acquiring legal assistance, protecting oneself, and recognizing or reporting sexual abuse in children. Never-the-less, societal structures which perpetuate domestic violence and child sexual abuse are not questioned and thus remain unchallenged.

Likewise, an informal literature search for family life education programs for Northern and Native peoples revealed an emphasis on instrumental/technical programs. For instance, in Albuquerque, New Mexico a fetal alcohol syndrome prevention program trained Native Americans and Alaskan Natives to impart information to a variety of audiences (May & Hymbaugh 1989). Long (1986)

reported on a project designed to prevent adolescent suicide by reinstating tribal traditions and practices, providing preventive and therapeutic counselling, and offering health education. One of the few Canadian studies that was reviewed described a program which taught parents how to promote their children's early language and reading skills in the home (Mayfield 1985). While perhaps helpful in many ways, these programs do not challenge societal conditions which contribute to alcoholism, adolescent suicide, and the limited educational opportunities and successes for Natives and Northern peoples.

A critical social science perspective would begin to help people explore the ways in which oppressive societal conditions may have contributed to the problems, or self-defeating behaviours. Assuming that existing self-defeating behaviour patterns have evolved partially because of oppressive life experiences, family life educators would create opportunities for participants to reflect on their experiences with oppression as well as examine the historical roots of specific forms of discrimination. Both macro-sociopolitical conditions as well as human psycho-social processes are explored. Critical social science paradigms claim that as enlightenment occurs, people will take personal action to free themselves from existing circumstances. However, it is also thought that until insight as to the sources of ones' personal oppression begins, victims of oppression will continue the cycle by discriminating against or abusing others (Egeland, et.al. 1988; Miller 1983). For example, in Egeland, et.al. (1988) study of 267 mothers from lower socio-economics backgrounds, it was found that opportunities for the mothers to discuss their abusive childhoods were helpful. Mothers who had been able to reflect upon these experiences and received validation from someone else were then able to integrate their abusive realities of life into their self-perceptions. As a result, they were able to disrupt intergenerational family patterns of abuse as they interacted with their own children.

Paulo Freire's (1970) work teaching Brazilian illiterate peasants to read is an example of a critical social science application. Realizing that merely teaching peasants to read would not change their socio-economic status in an economically stratified country, he taught them to read in a way which facilitated their enlightenment about processes of social inequality. As a result, they became involved in reconstructing social inequities within their society. Ira Shor's (1980) work is another example. As a professor of English at Staten Island College in New York, he facilitated students' enlightenment about how community colleges promote thought-control and false consciousness thus continuing the social stratification necessary for industrialization. Fay (1977) cites the women's movement as being useful in that it has provided a critique of the ideology that characterized women's thinking about themselves and their world, and that it has provided a concrete social analysis that explained the power of the movement and showed the direction it must take (p.231).

A Critical Theory for Family Life Education

My own professional practice and research has resulted in the development of a critical theory of self-formation (Morgaine 1990). I have had opportunities to integrate my theory into work designed to prepare a variety of human services professionals to become less discriminatory in their delivery of services. This theory is also a central focus for a curriculum that I developed for Minnesota's Department of Human Services: the Chemical Dependency Division. This curriculum, *Process Parenting* (Morgaine 1987), was designed to teach human services professionals how to address parent-child relationships in the everyday lives of recovering chemically dependent parents. Assuming that most individuals experience some form of discrimination, *Process Parenting* provides opportunities for recovering chemically dependent parents to reflect on oppressive childhood experiences. Using the concepts authenticity, power, abandonment, shame, defenses, addictions, prejudices, and oppression, recovering parents are asked to reflect upon life experiences and explore links between self and society.

Professionals who have used *Process Parenting* have found clients interested in examining their self-defeating behaviours in this manner and able to begin to making significant life changes. One practitioner who used *Process Parenting* with battered women stated that:

> "As a result of processing their childhoods using *Process Parenting*, my clients were able to make informed choices concerning their own lives and the lives of their children. One woman described it as 'opening windows and now that I know what is in them I can choose to use what I want, and throw away what I don't want.' All my clients reported a new insight about society and sexism. Most of the women had never thought about their own role in sexism. One client still brings me magazine advertisements depicting females in vulnerable situations, which to her amazement had not been difficult . . . The sessions on power and shame have made impacts on how they talk to their children and how they now try to give their children choices. . .I think the most astonishing changes I have seen is with one particular client. She was reluctant to talk when first joining the group. She joined the group during the first part of session six: addictive systems. The more we talked about characteristics and the roles members assume in addictive family systems the more talkative she became. Eventually, understanding that she was abused as a child led her to finally recognize that her own husband was abusing the step-daughter in the family. It was not until this client examined her abuse as a child that she was able to recognize the abuse going on in her own home."

Critical approaches to family life education are needed for Native and Northern families. As people examine the influences of an oppressive society, they will begin to self-select meaningful personal changes as well as become empowered to contribute to respectful processes of social reconstruction.

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Housing and Northern Lifestyles An Historical Overview

Hal Logsdon and Debbie Seto
Housing Corporation
Government of the Northwest Territories
Yellowknife, N.W.T.

Introduction

Before 1950, most Northern Native households depended on the land for subsistence. They made their own portable or seasonal shelter in various locations to enable them to harvest animals over a wide territory. Today most of the Native population in the N.W.T. live in permanent settlements occupying houses which resemble those found in many other Canadian communities. The lifestyle of Northern Native families and the shelter in which they live have both changed dramatically over a short period of time.

The introduction of the school and health programs in the North was probably the most significant factor which triggered the shift from a nomadic hunting culture to life in settlements. Government housing, however, was perhaps a necessary catalyst. With the construction of government schools and medical centres, families began to establish residences around these facilities.

Many families in the new settlements continued to use traditional forms of shelter such as tents and igloos. Families also used discarded material from government construction projects to build shacks. Tents and igloos, which were reasonable forms of shelter for nomadic life, proved less suitable in the settlements. The shacks were miserable.

The deplorable housing conditions which resulted from the settlement of families around schools and health centres worked against the very goals these facilities were intended to achieve. The first government housing programs were designed to provide minimal shelter so that families that migrated to centres for health services and education for their children could benefit from these services.

As life in settlements became more established, the housing product and programs were increasingly driven by Canadian housing norms. Canadian standards of adequate and suitable housing were gradually introduced to the North and

have been incorporated into the housing expectations and lifestyle of most Northern residents.

Housing costs soared as Canadian residential standards became accepted bench-marks. Northerners now expect access to housing of a reasonable quality but outside of the major centres in the N.W.T., most have become totally dependant on government housing assistance.

The cost associated with the housing programs in the North is also an issue because it is apparent that government is not able to sustain the necessary level of assistance to supply Native households with adequate and suitable accommodation under the current program standards.

Housing Programs and House Types 1950 to the Present

Between 1950 and 1965, Native families became more permanently established around missions, trading posts, nursing stations, and schools. Most families assembled their shelter from traditional materials or discarded material from government construction projects.

Although there were a number of government housing initiatives between 1950 and 1965 the forms of assistance were often inappropriate and the number of units produced were not sufficient to create any significant improvement in housing conditions.

Between 1956 and 1965, the Department of Indian Affairs and Northern Development (DIAND) provided a number of small houses for sale to Inuit families in the N.W.T. and Arctic Quebec, under the Eskimo Housing Loan Program. The house designs ranged from one-room units to three-room units. Since the houses had to be purchased and few Inuit could afford even the smallest of the designs, most of the units delivered were the one-room models. Some of the units were supplied on a "welfare basis", primarily in the one-room configuration. In the Arctic District, 77% of the units supplied during this period were one-room units of 288 square feet or less. The average family unit at this time was 3.8 people and 90% of the one-room units were considered overcrowded by DIAND standards (accommodating 3 or more persons) (1).

Typical Eskimo Housing Loan Program designs are the 319 and 370A, the larger 395, and the palatial 396; all illustrated in Appendix A.

In the Western Arctic, the government housing assistance during this period was much less formal. Throughout the 1950s, informal assistance to help Dene families construct their own houses was provided through the local Indian Agents.

Often, local sawmills were established through the Indian Agent. Dene families supplied logs, labour or cash and the government supplied grants to assist them in building their own houses. In the four year period from 1958 to 1961, the Indian Affairs Branch assisted in the construction of 239 homes for Indians in the N.W.T. with contributions ranging from $300-4,000.00 (2). This assistance was provided under the Subsidy Housing Program, even though the program was designed for housing on reserves and there were no reserves in the N.W.T. at the time.

Housing produced under the program varied. Many units were built using local logs and sawmills. In terms of amenities and size, most of the units were similar to those provided through the Eskimo Housing Loan Program.

By 1964, it was apparent that the settlement patterns of the Inuit were changing radically and that government housing initiatives were not working. The Eskimo Housing Loan Program was unable to keep pace with the influx of Inuit to settlements in the Eastern Arctic. This resulted in widespread overcrowding and very poor housing conditions. It was also apparent that the Inuit could not afford to pay for the houses supplied under the program or the upkeep of the units.

In 1965, the Department of Northern Affairs and Natural Resources completed a housing survey which documented the severely inadequate housing conditions. "A total of 4,589 individuals were surveyed in the Baffin and Keewatin Regions of the Northwest Territories. Of these, 1,480 were living in 272 tents or snow houses; 722 were occupying unacceptable accommodation of the tar paper and scrap lumber type; 2,387 were crowded into 448 one room houses. Even in the remaining units hopeless overcrowding was indicated." (3)

In 1966, the Eskimo Housing Loan Program was abandoned in favour of a Rental Program. The Treasury Board Minute noted that, "..the present program falls seriously short in that it is moving too slowly, it is providing too small houses to meet family needs, and it does not ensure that Eskimo families have available to them at a cost they can afford, the minimum shelter and services required." (4)

The Eskimo Rental Program, introduced in 1966, provided units on a rent-geared-to-income basis and the size of the unit provided was related to family size rather than to the ability of the family to pay, although even the largest houses supplied were less than 700 square feet in area. (5)

In 1968, the Eskimo Rental Housing Program was extended to cover Indians in the N.W.T. and became known as the Northern Rental Housing Program. In the same year, the administrative responsibility was also transferred to the Government of the Northwest Territories which continued to administer the program until 1973. During this period the policy and direction of the program remained under the control of the Government of Canada. Between 1966/67 and 1972/73, 1,417 units were constructed. (6)

The Eskimo Rental Housing Program and the Northern Rental Program were the first major attempts to deliver social housing in the N.W.T. Units ranging in size from one room to three bedrooms were supplied and allocated according to family size. Rental rates were set according to income and ranged from $2.00/month to 20% of income or $100/month, whichever was the greater. Rent was inclusive of power, fuel, municipal services and maintenance, although quotas were established for fuel and power. A purchase option was available whereby tenants could apply one-third of rent paid and $100/year against the purchase price. New tenants were also provided with a one-time furniture allowance of $500.

Since all of the housing provided was rental tenure, the government required some form of local property management capability at the community level. The Northern Rental Program authorized the establishment of Housing Associations to

help administer the program by collecting rents and operating the day-to-day maintenance of the units. These organizations have become the backbone of social housing delivery in the N.W.T. and now exist in almost every community. The Housing Associations predate most other formal organizations in many communities, including the municipal government. Today, 46 N.W.T. Housing Associations manage a combined housing portfolio of 4,800 units. Total expenditures on this portfolio exceed $64 million/year.

A wide variety of units were built under the Northern Rental Program. Typical unit types are illustrated in Appendix A.

In 1971, the Northwest Territories Council established a Task Force on Housing to "study, discuss and develop meaningful solutions...to the housing problem".(7) The final report of the Task Force was tabled a year later in June, 1972. One of its most important recommendations was to establish a Northwest Territories Housing Corporation to create and co-ordinate housing programs in the N.W.T. This recommendation was carried out in 1974, with the creation of the Northwest Territories Housing Corporation which took over the responsibility for social housing in the N.W.T.

Although the Government of the Northwest Territories had undertaken a few housing projects in conjunction with Central Mortgage and Housing Corporation, the new N.W.T. Housing Corporation began to develop unprecedented numbers of new rental housing projects under the National Housing Act. Between 1974 and 1980, over 1,300 new units were built. As significant as the level of production was the standard to which the units were built. Unless there were no provisions for servicing in the community, the units had hot and cold running water, bath, shower, and flush toilet facilities.

Their size, design and amenities resembled those in many Canadian cities and towns. The fully modern, southern bungalow had come North. Typical rental units developed by the N.W.T. Housing Corporation between 1974 and the present are reviewed in Appendix A.

To a lesser extent, the N.W.T. Housing Corporation also provided assistance to residents who wished to own their own homes. In small Western Arctic communities where rental housing had not been developed, the Corporation offered assistance to families that were willing to build their own homes from locally harvested logs.

The Country Home Assistance Program, which evolved from the informal assistance provided through the Federal Indian Agents and later the Commissioner of the N.W.T., provided manufactured materials such as plywood, windows, doors and roofing material to households building log homes. Until 1977, this assistance was limited to a few communities and did not produce anywhere near the number of new houses or the significant changes in housing standards as did the Rental Program.

In 1977, however, the Country Home Assistance Program was expanded to all of the Western Arctic communities as the Small Settlement Home Assistance Program and a portfolio of new designs was created which incorporated many of

the modern housing features available in the Rental Housing Program. The program was expanded again in 1983 as the Homeownership Assistance Program and became available in all N.W.T. communities. The designs which were developed for the Homeownership Assistance Program were hardly distinguishable from those used in the Rental Program in terms of amenities. Typical units which were delivered under the Small Settlement Home Assistance Program and the Homeownership Assistance Program are reviewed in Appendix A.

Cultural Influences on Housing

In most government housing programs, a certain degree of sensitivity to the Native lifestyle has been reflected in housing design.

Some of the earliest attempts to improve housing conditions included manufactured shelter based on traditional Native housing forms. Insulated tents and a number of bizarre styrofoam igloos were supplied during the mid-1950s in an attempt to improve conditions. Very small scale, affordable shelter was preferred. "It was felt that a government subsidy covering capitalization or heating of houses would be undesirable since it would enhance the Eskimo's dependence on the white man and hinder his development in the increasingly complex society of the modern Arctic." (8)

Both the Eskimo Housing Loan Program and the Subsidy Housing Program produced mostly small housing units. House size was dependent on a family's ability to afford the cost of the unit. Consequently, small units were built even though the extended family was the cultural norm in both the Dene and Inuit cultures. Although this approach was intended to enhance the independence of the household, the programs did little to alleviate overcrowding because while the household sizes were large, the families could only afford the smaller units. The failure of these programs to alleviate overcrowding led to the introduction of the Northern Rental Program which provided affordable housing regardless of unit size.

After the implementation of the Northern Rental Program, the unit sizes steadily increased in response to the family sizes of households in need. Most of the Northern Rental units supplied between 1968 and 1973 were three-bedroom units, which were the largest of the designs. When the N.W.T. Housing Corporation started operations, four and five bedroom units were designed and delivered in response to the larger household need.

In the mid-1980s, evidence of the breakdown of the extended family began to appear. An increasing number of young nuclear families in both Dene and Inuit communities began to express their desire for separate accommodation. In response to this change, the N.W.T. Housing Corporation began to produce smaller units in one and two bedroom designs which were very well received in most communities. Since 1986, over 85% of the total rental unit production of the Corporation has been either one or two bedroom units, mostly in rowhouse or duplex configurations.

It is interesting to note that although Housing Needs Surveys indicate that many young families, who are living with parents, want separate accommodation,

their parents often want larger houses to accommodate and maintain the extended family. Since the management of social housing, including the allocation of units to families, is done by local Housing Associations, the question of whether to provide separate accommodation to young families is often a controversial issue. Often, Housing Association Boards composed of older residents will ignore requests from young families for separate housing, preferring that they remain with their parents. These Associations will usually request larger housing for the community despite the results of the survey.

Early interior designs were primarily open space with few partitions to allow for the preparation of game and organization of hunting and trapping equipment. Native households did not consider the partitioning of childrens' sleeping areas particularly important. These areas were often designed in an open configuration which could be arranged in any number of ways to accommodate different family sizes.

Storage areas for outdoor clothing, firearms and trapping equipment were important and were often accommodated in designs as cold porches to prevent condensation and rusting of metal equipment. These storage areas also doubled as airlocks, preventing cold air from entering directly into the main living area of the dwelling.

The Influence of Government Programs and Services on Housing Standards and Lifestyle

Improvements in Northern housing did not become a significant issue until it was recognized that the existing housing programs had to be improved to meet education and health objectives. "....it has been impossible for the children to do adequate home study and, therefore, to compete on reasonable terms with their fellow white students. These same crowded conditions also serve to perpetuate the high disease and mortality rates prevalent among the Eskimos." (9)

Once Native families became settled in communities, it was only just that they should have access to housing of the same standard as other Canadians. After all, by the mid-1960s, social housing assistance was firmly established as part of the Canadian social safety net.

The influx of Southern teachers, nurses, and administrators into the North also helped to create a housing standard which influenced Native housing. The introduction of staff housing created a bench-mark which the Native housing programs have only recently achieved. Staff housing, in comparison to Native housing, was usually superior in quality, with state of the art amenities, and, before 1974, was larger and seldom overcrowded. In most cases, furniture was supplied and maintenance and repair services were much better.

When the N.W.T. Housing Corporation began to deliver housing in 1974, most of it was financed in conjunction with Central Mortgage and Housing Corporation (later Canada Mortgage and Housing Corporation (CMHC)). CMHC expected the housing product to conform to minimum residential standards unless the community infrastructure made compliance impossible. The housing product

quickly began to conform to Southern standards. Living areas and ancillary space increased rapidly, to match Canadian housing standards.

Community infrastructure has gradually improved and promoted corresponding improvement in housing adequacy. In the 1960s it was impossible to provide running water or flush toilets in houses because few communities had water and sewer facilities. Holding tanks were not installed because there were no vehicles to deliver fresh water or pump out sewage. Reservoirs, fill points for trucks, treatment and filter facilities and sewage lagoons all had to be developed. By the late 1970s, however, most of this infrastructure was in place and fully modern housing could be built and maintained in most N.W.T. communities.

The rapid change in housing adequacy is illustrated in Table 1 (p. 109). In 1965, only a small number of houses had a level of service which was comparable to the Canadian norm. Today, all new government housing meets or exceeds Canadian adequacy standards and much of the older stock has been replaced or rehabilitated.

The size of units has also increased to meet Canadian norms. The early Northern Rental units were trimmed down to the bare essentials. In 1975, the government outlined that the Northern Rental Program ...."does not provide anything more than the minimal now considered essential. The largest house (three bedrooms) will have an area of not more than 700 square feet and the heating, water, sewage, and electrical services to be provided will be kept to minimum quantities, in most cases well below Southern standards." (10) After 1974, when the N.W.T. Housing Corporation began to produce housing in partnership with CMHC, the sizes of the units increased rapidly to Canadian standards. Figure 1 (p. 105) illustrates the changes in the size of government produced Northern housing. The configuration of houses also changed significantly. Additional space was added to units for storage and utilities. Partitions began to appear in designs after 1965 which separated sleeping areas from living areas. Later, separate kitchen and dining areas appeared with hallways. The increase in ancillary space, shown in Figure 2 (p. 106) outlines these changes from the one room house to the modern partitioned bungalow.

Native households quickly adapted to the modern units. Common household tasks such as wood harvesting and water hauling were no longer necessary. Cooking and bathing, chores which were onerous and time consuming in the older units, were simple in the new units. It was necessary to provide households with some orientation to the modern units since they had no previous experience with refrigerators, electric ranges, flush toilets, central heating, or water systems. The change came easily.

Housing Associations were trained to inform new tenants about the use and care of their new homes. Maintenance personnel were also trained through the N.W.T. trades programs to maintain and service the new units.

Since the subsidized rents for the houses included heat, electricity, water and sewage; these new amenities had little financial impact on families.

Modern Housing Costs, Affordability and Options

As households adopted modern housing standards and the rental regime established by the government, a growing dependency began to develop. Very few Native families had the household income to maintain this standard of housing outside the program.

Table 2 (p. 110) shows the actual housing costs, by component and the annual income required to afford the full costs of modern, modest housing without government assistance for selected communities in the N.W.T. (11) Outside the market communities of the N.W.T., few households can afford the cost of maintaining housing of this quality. As shown in Figure 3 (p.107), the average shelter costs often exceed the average household income.

The cost of providing housing in the North has also become a staggering expense to government. The Government of the N.W.T. and CMHC spend in excess of 100 million dollars a year on Social Housing in the N.W.T. and yet up to 70% of households in some communities are considered to be in Core Need, compared to the Canadian average of 14%. (12) Gross Federal social housing expenditures in the N.W.T. now rank fourth in Canada, behind only Ontario, Quebec, and British Columbia.

The analysis of household income indicates clearly, however, that the large subsidies offered through the Rental Program are required for the majority of households in order to maintain current housing standards. There are, however, a significant number of households that may benefit from a form of subsidized homeownership which involves less of a government subsidy and promotes a lifestyle more independent of government programs.

Figure 4 (p. 108) outlines the distribution of household income in the Kitikmeot Region (13). Sixty-two percent (62%) of the households in the region have incomes below $1,800/month, which is approximately the level at which a household would have to spend 30% of the household income for housing expenses not including payments of principal and interest. Rent-geared-to-income (RGI) housing is necessary for these households who cannot afford to pay the cost of utilities and maintenance. Without an RGI Program which includes these charges in rent, most of these families will not have access to adequate housing within their means. Only 4% of the households in the region have incomes above $6,200/month which is sufficient income to maintain a house without government assistance, including payment of principal and interest.

The necessity to provide subsidized rental housing is apparent. The N.W.T. Housing Corporation's Homeownership Assistance Program (HAP), introduced in 1983, provides some relief from the cycle of increased dependency on government and spiralling subsidy costs, as well as a level of assistance more appropriate to those households that are able to afford the basic housing operating costs. The program is a more formal adaptation of the early Federal housing support to Indians. The program provides a house kit which the client builds with government supervision. On completion, the client maintains the unit without additional finan-

cial support from government. After the completion of the unit, the client is a homeowner; independent of the government, responsible for his own operation and maintenance expenses, with a significant personal investment in the home.

Although often criticized as a giveaway, the Homeownership Assistance Program has achieved two important goals. First, it has provided a modicum of housing independence to clients. After a short forgiveness period, they own the unit. Second, the subsidy is significantly less than the rental alternative since the lifetime operational subsidy is eliminated.

Since its introduction, the program has been effective in moving households out of more expensive RGI housing into their own homes. Of course, the program has limitations since it is not effective for lower income households. Even in high cost areas like the Kitikmeot, however, a significant number of households can be served at lower subsidy cost than RGI Programs. More importantly, the program provides households with an independence from government assistance and promotes self-sufficiency.

In summary, permanent housing supplied by government was necessary to ensure the effectiveness of the health and education programs in the N.W.T. The housing programs were significant factors in the adoption of settlement life by Native households in the N.W.T. The introduction of increasingly modern housing amenities was readily accepted and a number of housing features to accommodate unique Northern lifestyles have been incorporated into today's designs. The cost of achieving these standards has been high, both in terms of government subsidy cost and in the almost complete loss of housing independence by Native households. Today, however, there is a growing desire to re-establish independence from government housing assistance. Although the costs of modern housing is still beyond the means of most Native families, programs such as the Homeownership Assistance Program are helping to re-establish independent housing while, at the same time reducing government subsidy costs.

References

1. Government of Canada, Department of Northern Affairs and Natural Resources, Public Housing Section. 1965. Eskimo Housing Survey, Arctic District, N.W.T., January-April.

2. Northwest Territories Housing Corporation, Indian Housing in the North, by Judy Collard, February, 1983; p.13.

3. Government of Canada, Department of Indian Affairs and Northern Development, Northern Rental Housing Program, p.2.

4. Government of Canada, Treasury Board, Minute #646089, October 12, 1965.

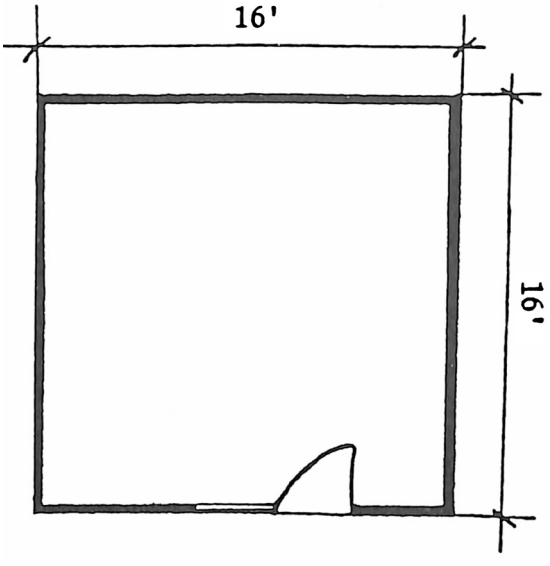
5. Government of Canada, Treasury Board, Minute #646089, October 12, 1965.

6. Government of Canada, Department of Indian Affairs and Northern Development, Northern Rental Housing Program Manual, p.3.

7. Council of the Northwest Territories, Northwest Territories Council Task Force on Housing, Report, June, 1972.
8. Government of Canada, Indian and Northern Health Services, Department of National Health and Welfare and Northern Administration Branch, Department of Northern Affairs and Natural Resources, Eskimo Mortality and Housing, 1960, p.67.
9. Government of Canada, Treasury Board, Minute #646089, October 12, 1965.
10. Government of Canada, Treasury Board, Minute #646089, October 12, 1965.
11. The Affordability Threshold is the income at which a household would have to spend 30% of their income on shelter costs. Northwest Territories Housing Corporation, Core Need Income Thresholds for Social Housing Eligibility, April, 1990.
12. "Core Need" households are those which have a current housing problem, either affordability, suitability, or adequacy, and are financially unable to obtain proper housing within their means. The N.W.T. estimates of Core Need have been determined through the N.W.T. Housing Corporation's Housing Needs Society, 1990. The Canadian estimates are outlined in Canada Mortgage and Housing Corporation, Research Division, Report on Estimates of Core Housing Need for 1988, January, 1990.
13. The Kitikmeot Region includes the communities of Holman, Coppermine, Cambridge Bay, Spence Bay, Pelly Bay, and the small unorganized communities of Bathurst Inlet and Bay Chimo. The data was gathered through the N.W.T. Housing Corporation Housing Needs Survey, 1990.

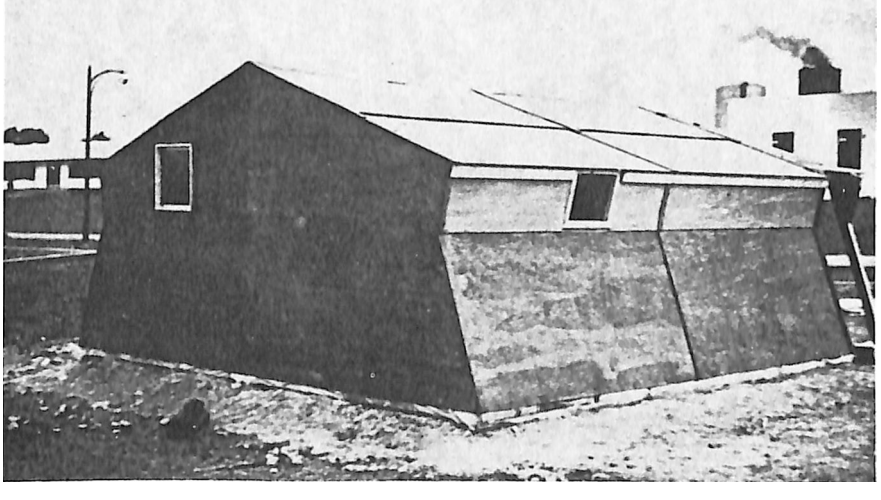
APPENDIX A - 1

ESKIMO HOUSING LOAN PROGRAM
RIGID FRAME - PLAN 319



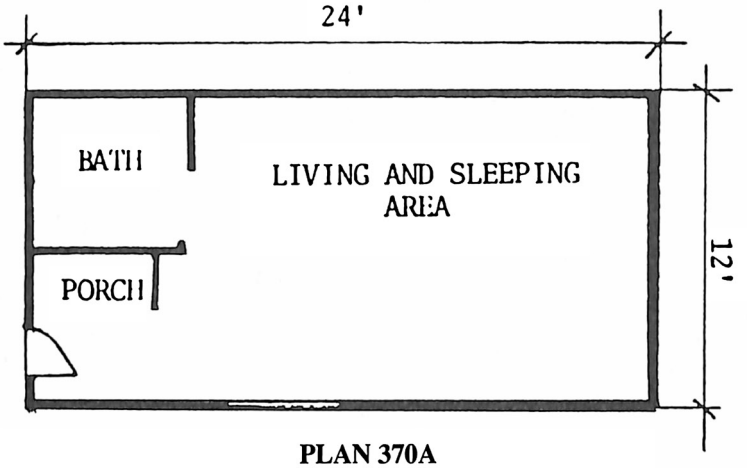
PLAN 319

- Square Footage - 256
- Number of Room(s) - 1
- Number Supplied to Artic District - 335



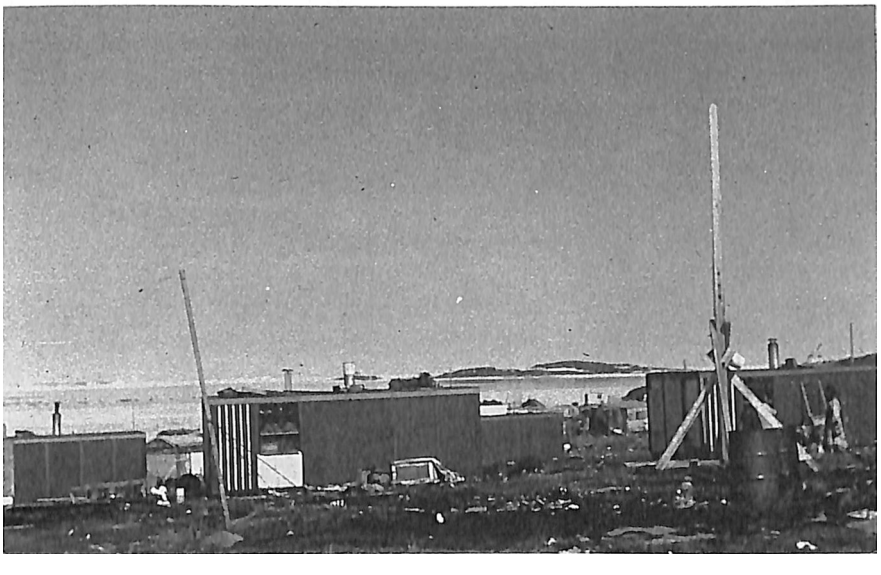
APPENDIX A - 2

ESKIMO HOUSING LOAN PROGRAM
MATCHBOX PLAN 370A



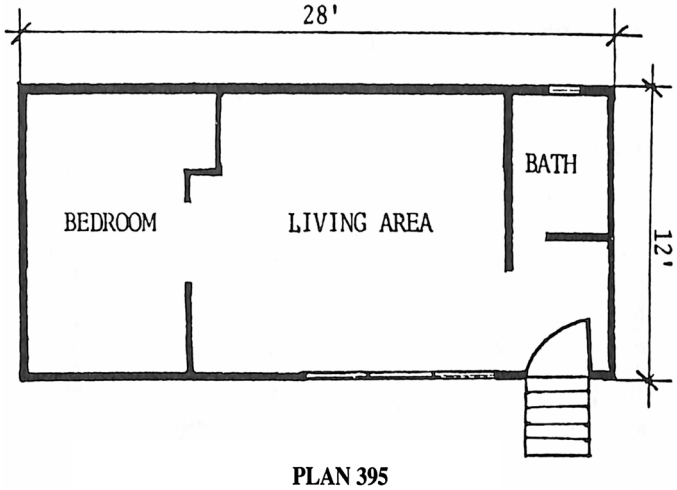
PLAN 370A

- Square Footage - 288
- Number of Rooms - 1
- Number Supplied to Artic District - 587
- Average Cost, FOB Montreal - $1,600.00



APPENDIX A - 3

ESKIMO HOUSING LOAN PROGRAM
PLAN 395



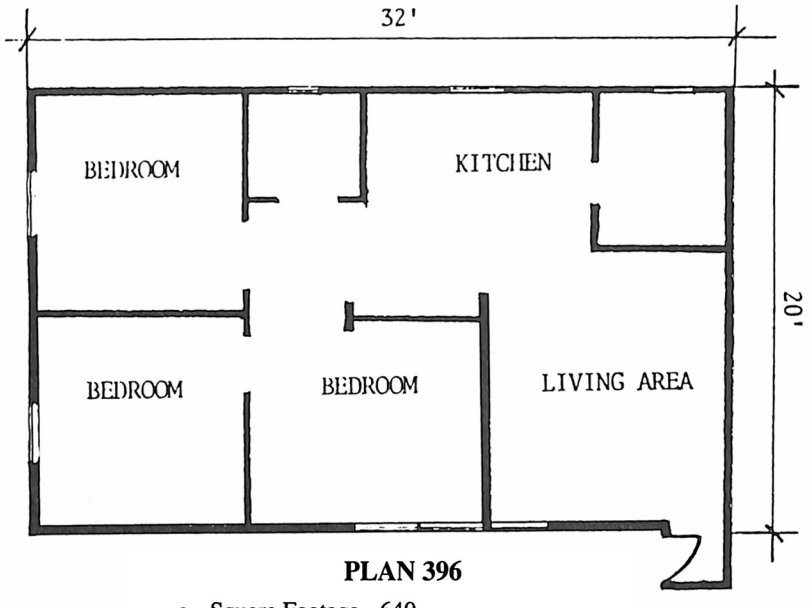
PLAN 395

- Square Footage - 252
- Number of Rooms - 2
- Number Supplied to Arctic District - 29
- Average Cost, FOB Montreal - $2,500.00

(NO PHOTO AVAILABLE)

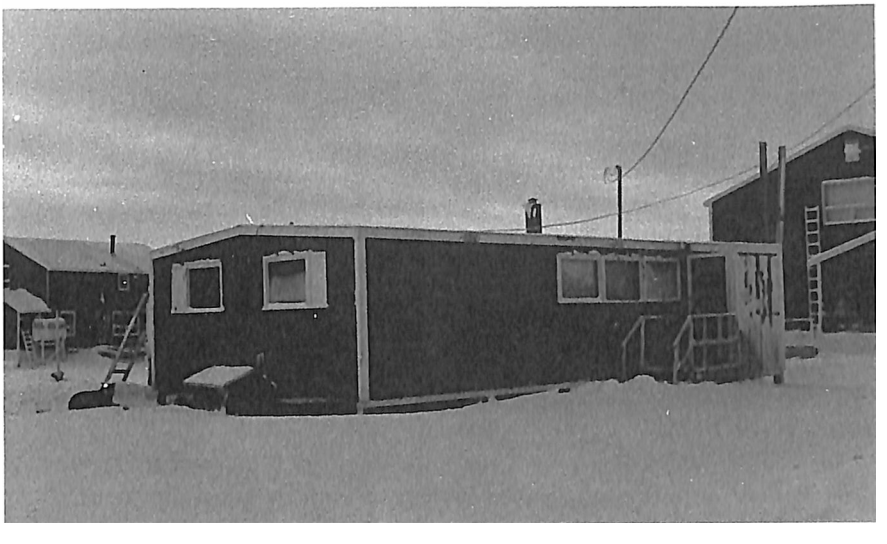
APPENDIX A - 4

ESKIMO HOUSING LOAN PROGRAM
PLAN 396



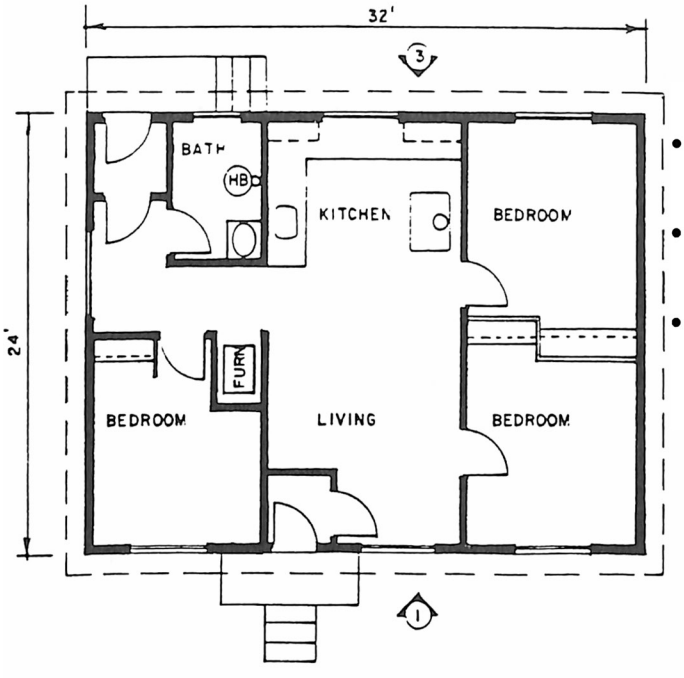
PLAN 396

- Square Footage - 640
- Number of Rooms - 4
- Number Supplied to Arctic District - 11
- Average Cost, FOB Montreal - $4,500.00



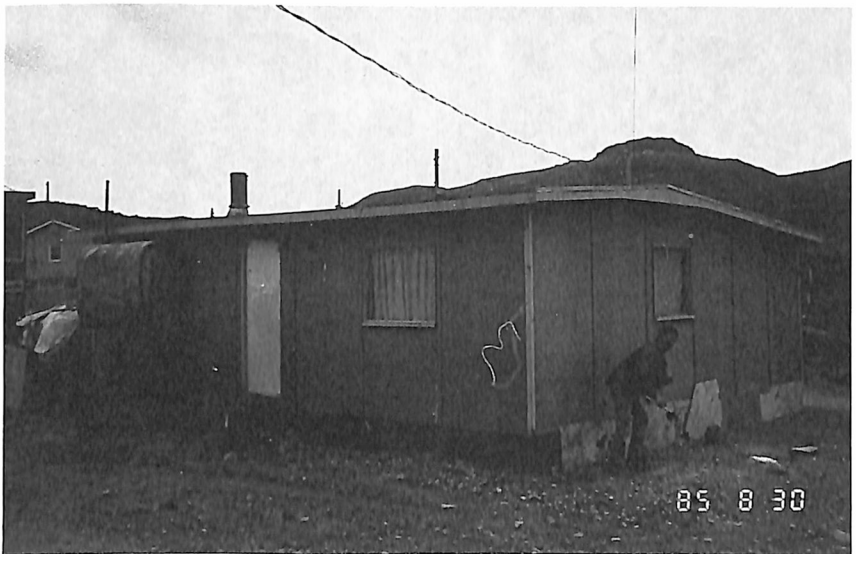
APPENDIX A - 5

NORTHERN RENTAL HOUSING PROGRAM
PLAN 168



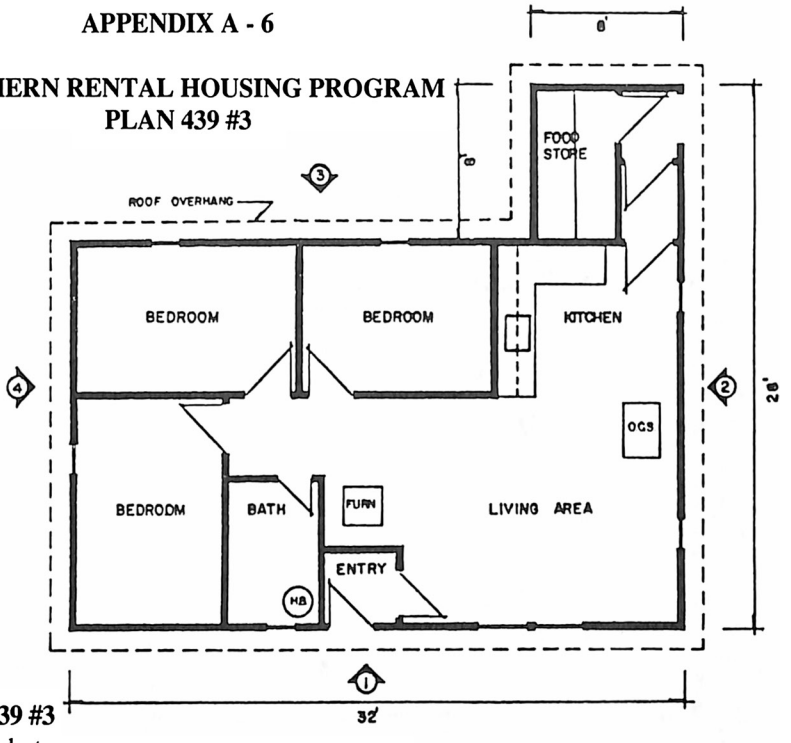
PLAN 168

- Wood cook stove and furnace with overhead ducts
- 2 x 4 walls, 2 x 6 roof, 2 x 8 floor, cathedral ceiling
- Grey water drains outside, honey bucket



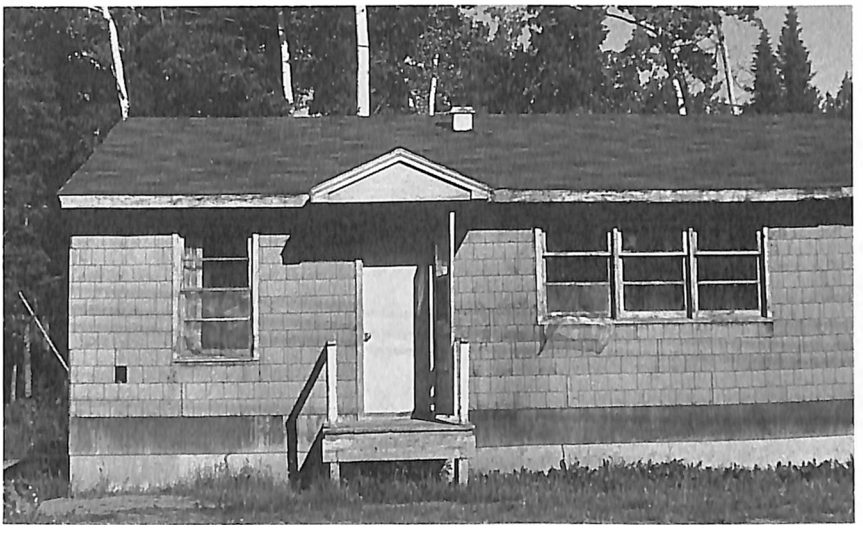
APPENDIX A - 6

NORTHERN RENTAL HOUSING PROGRAM
PLAN 439 #3

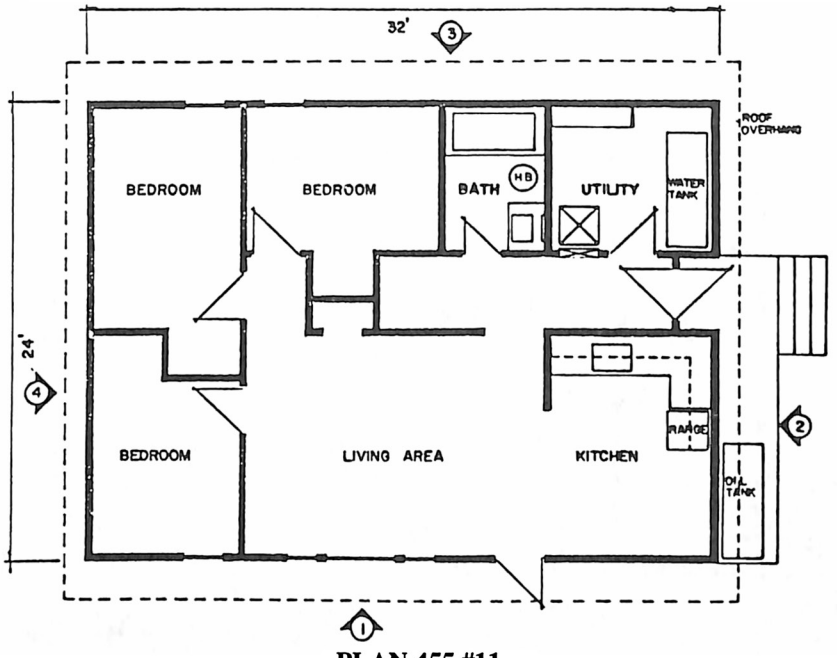


PLAN 439 #3

- Oil cook stove
- Grey water drains directly outside, honey bucket
- Furnace with overhead ducts located beside entry
- Cathedral ceiling
- Wall in food store area may be removed
- Panellized construction includes interior walls

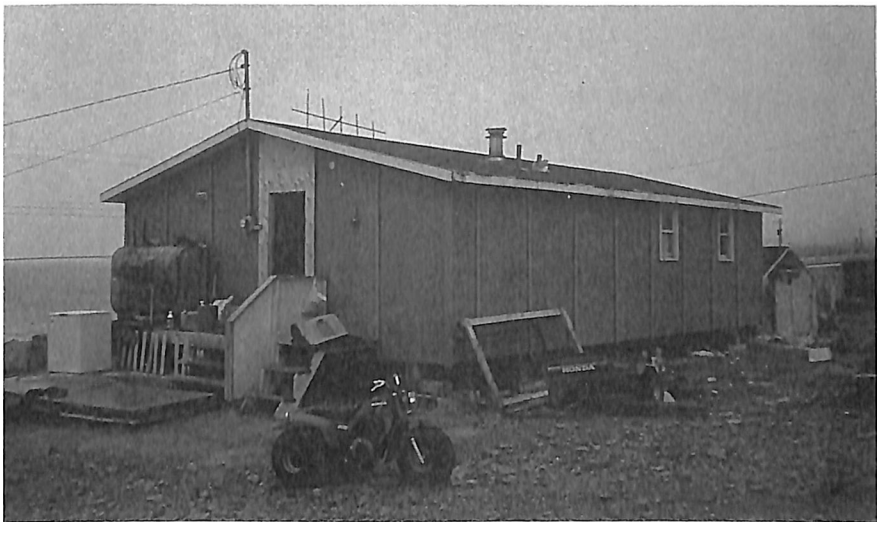


APPENDIX A - 7
NORTHERN RENTAL HOUSING PROGRAM
PLAN 455 #11



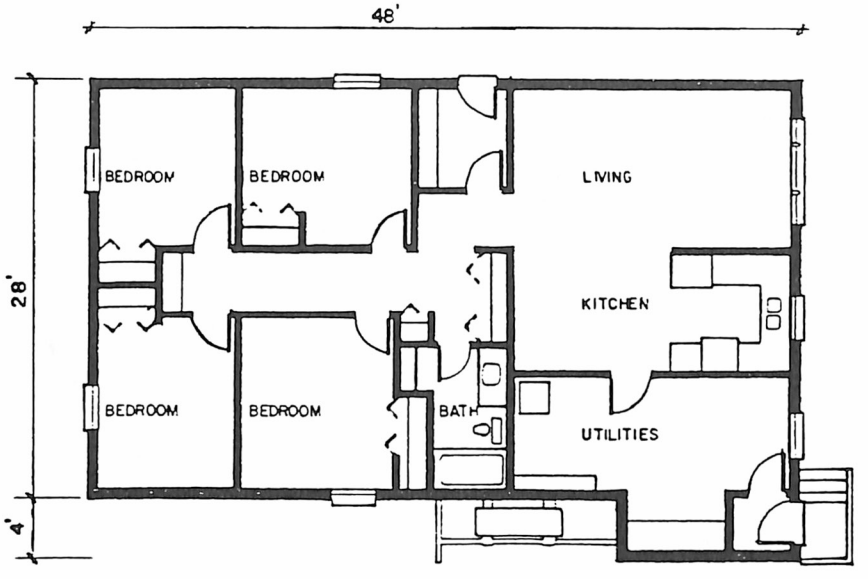
PLAN 455 #11

- Electric range, no regrigerator
- Sewage tank included, not connected
- Water tank, no pressure system
- Openable windows
- Double floor
- Roof truss, attic space vented
- Panellized walls, and floor
- Wood pad foundation with wedges



APPENDIX A - 8

NWT HOUSING CORPORATION
PUBLIC HOUSING PROGRAM (SEC 43)

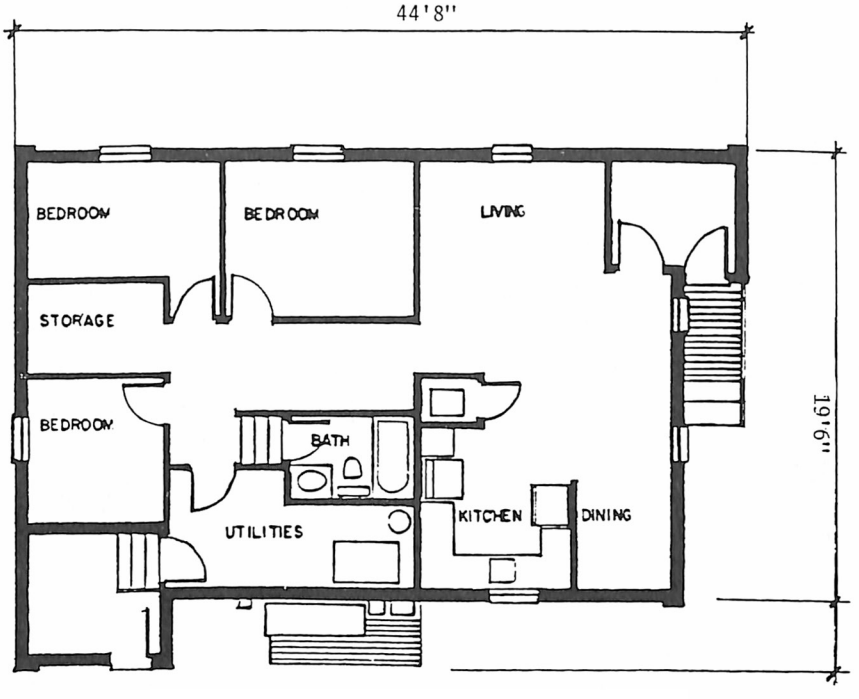


1979 4 BR WEBER

- Truss roof, panellized walls and floor
- Forced air furnace with ducts in 2 x 6 false floor

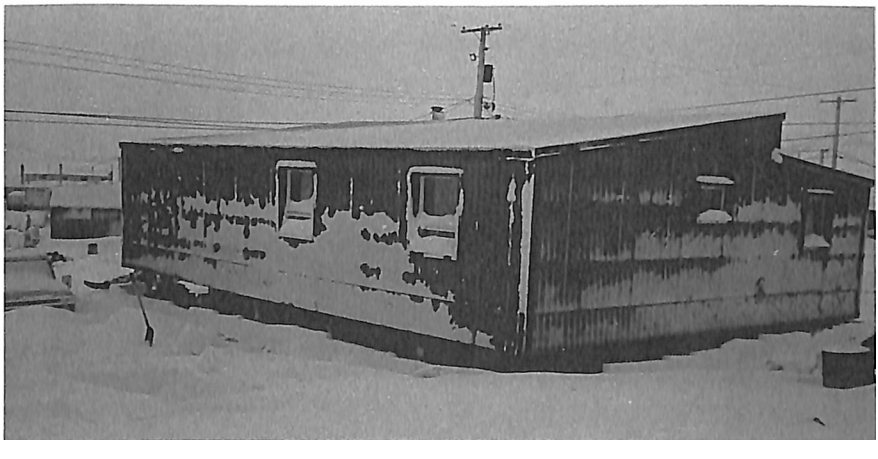
APPENDIX A - 9

NWT HOUSING CORPORATION
PUBLIC HOUSING PROGRAM (SEC 43)



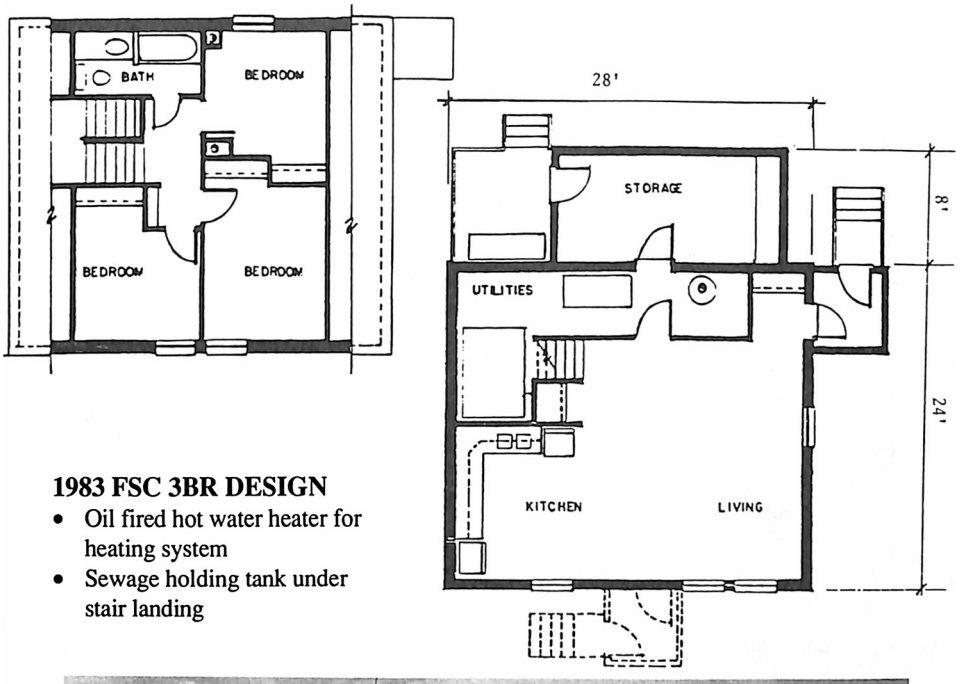
1980 3 BR WOOLFENDEN

- Forced air furnace with overhead ducts
- Sewage holding tank under raised bathroom
- Truss joist roof and floor, panellized walls



APPENDIX A - 10

PUBLIC HOUSING PROGRAM (SEC 40)
FERGUSON SIMEK CLARK 3 BR DESIGN

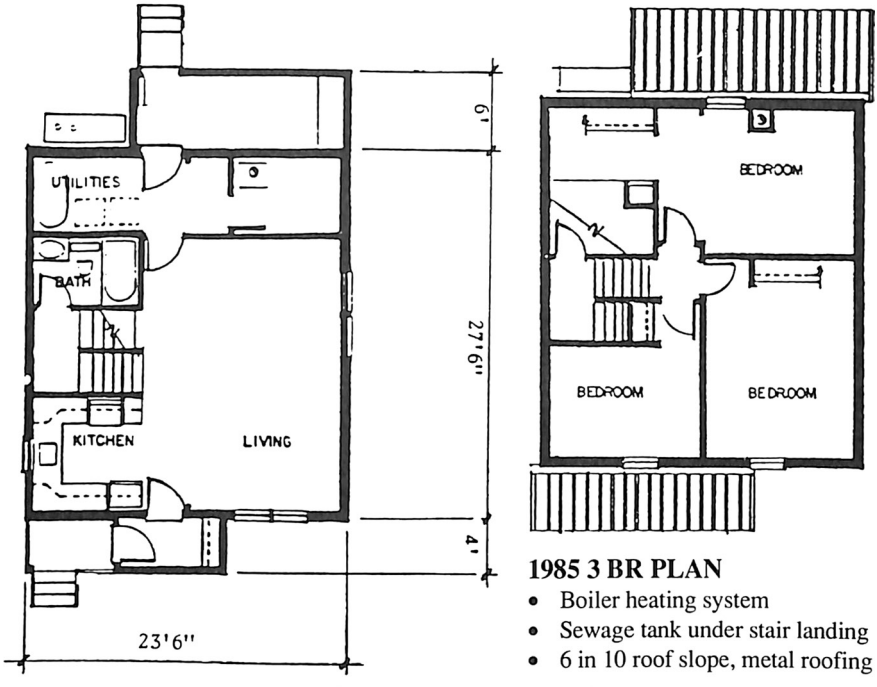


1983 FSC 3BR DESIGN

- Oil fired hot water heater for heating system
- Sewage holding tank under stair landing

APPENDIX A - 11

PUBLIC HOUSING PROGRAM (SEC 40)
NWT HOUSING CORPORATION

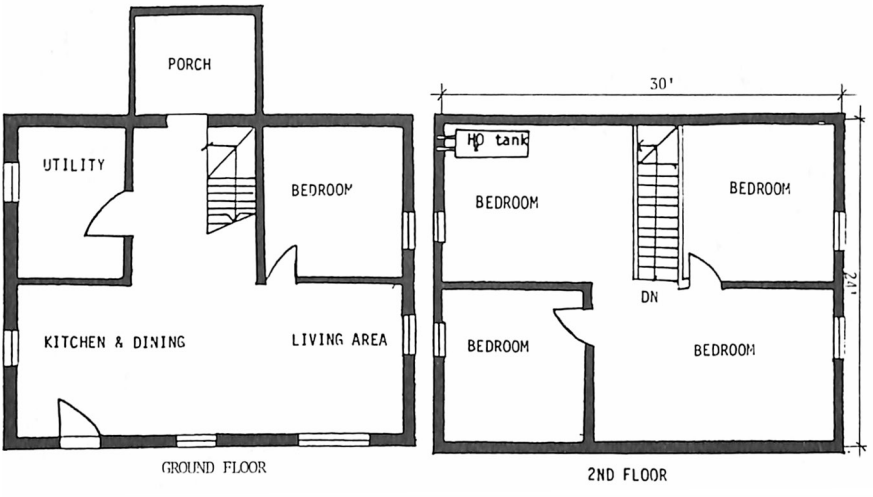


1985 3 BR PLAN

- Boiler heating system
- Sewage tank under stair landing
- 6 in 10 roof slope, metal roofing

APPENDIX A - 12

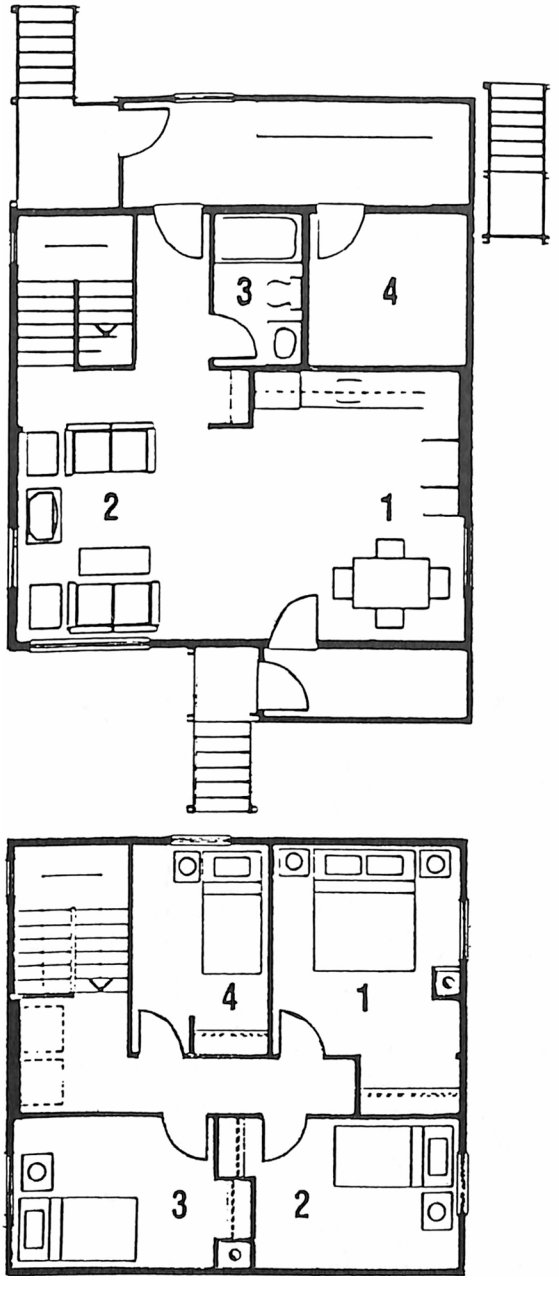
SMALL SETTLEMENT HOME ASSISTANCE GRANT PROGRAM



- Log frame
- Square footage - 720
- Number of rooms - 7

APPENDIX A - 13

HOMEOWNERSHIP ASSISTANCE PROGRAM
1989/90 HAP 'A'



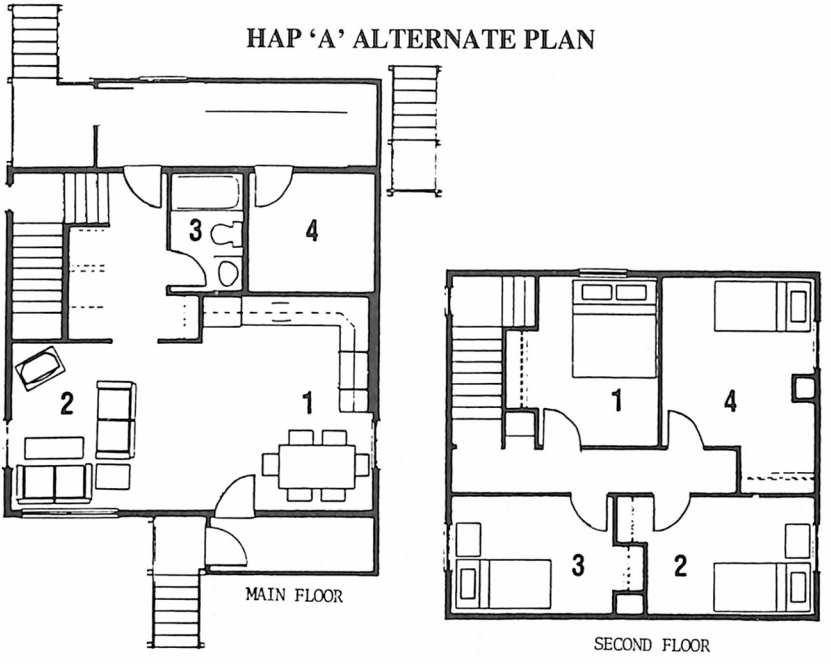
DESIGN 'A'

MAIN FLOOR
792 SQ. FT.

1. Kitchen
   168 sq. ft.
2. Living Room
   182 sq. ft.
3. Bath
   42.5 sq. ft.
4. Mechanical
   74 sq. ft.

SECOND FLOOR
624 SQ. FT.

1. Bedroom #1
   113 sq. ft.
2. Bedroom #2
   92 sq. f.t
3. Bedroom #3
   90 sq. ft.
4. Bedroom #4
   68 sq. ft



MAIN FLOOR —792 SQ. FT.

1. Kitchen - 168 sq. ft.
2. Living Room - 155 sq. ft.
3. Bath - 42.5 sq. ft.
4. Mechanical - 70 sq. ft.

SECOND FLOOR —624 SQ. FT.

1. Bedroom #1 - 68 sq. ft.
2. Bedroom #2 - 92 sq. ft.
3. Bedroom #3 - 90 sq. ft.
4. Bedroom #4 - 113 sq. ft.

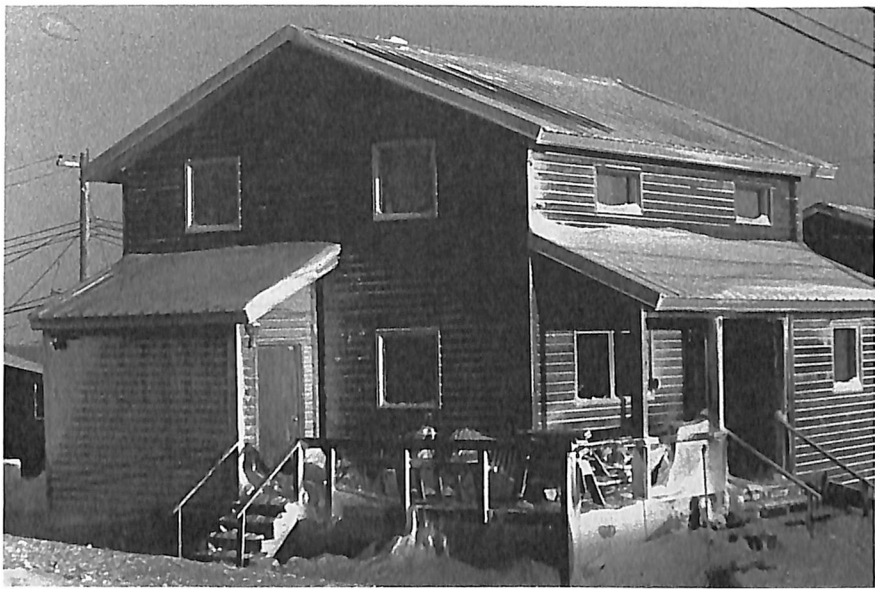
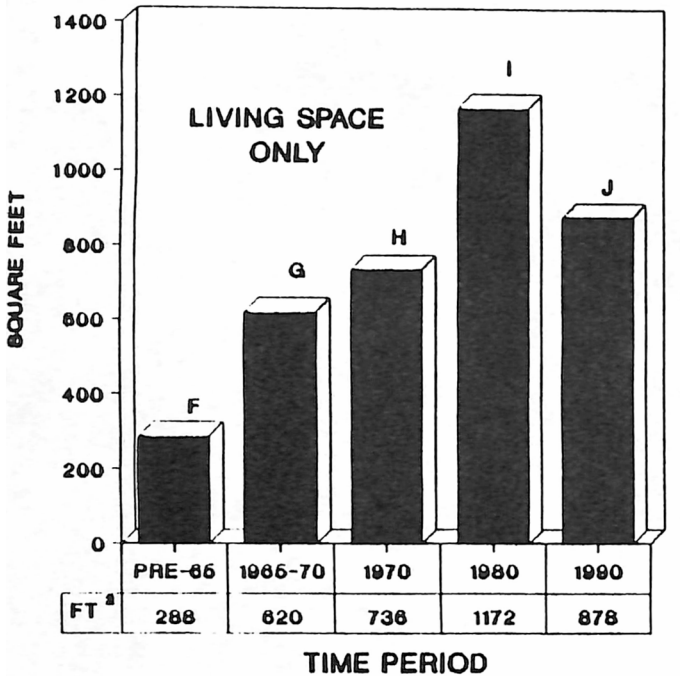


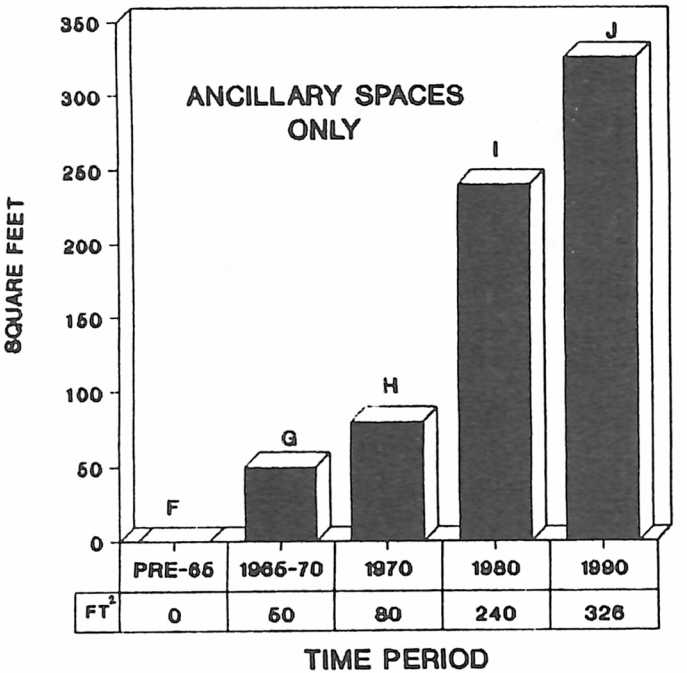
FIGURE 1
N.W.T. HOUSE SIZE ANALYSIS
PRE-1965 TO 1990



PROGRAM	TIME PERIOD	DESCRIPTION	LIVING SPACE (SQ.FT.)
ESKIMO RENTAL HOUSING PROGRAM	PRE-65	1961 MATCHBOX (F)	288
ESKIMO RENTAL HOUSING PROGRAM	PRE-65	1963 RIGID FRAME	256
NORTHERN RENTAL HOUSING PROGRAM	1965-70	1966 3 BR. PLAN 436-1 (G)	620
NORTHERN RENTAL HOUSING PROGRAM	1965-70	1966 3 BR. PLAN 439-1	640
PUBLIC HOUSING SECTION 43*	1970	1974 3 BR. WEBER (H)	736
PUBLIC HOUSING SECTION 43	1970	1975 4 BR. WEBER	869
PUBLIC HOUSING SECTION 40	1980	1986 3 BR. NWTHC DESIGN (I)	1172
PUBLIC HOUSING SECTION 40	1980	1986 4 BR. NWTHC DESIGN	1363
PUBLIC HOUSING SECTION 40	1990	1990 3 BR. NWTHC DESIGN (J)	878
PUBLIC HOUSING SECTION 40	1990	1990 4 BR. NWTHC DESIGN	997

* Sections 43 & 40 of the National Housing Act

FIGURE 2
N.W.T. HOUSE SIZE ANALYSIS
PRE-1965 TO 1990

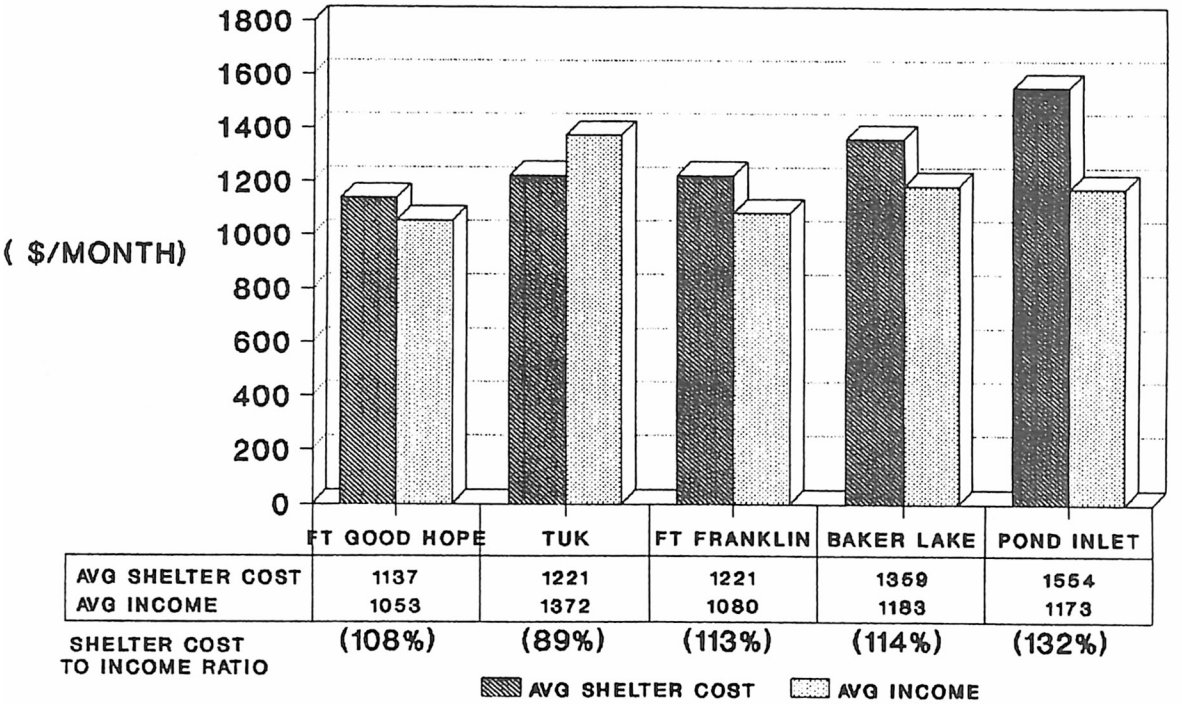


PROGRAM	DESCRIPTION	ANCILLARY SPACES (SQ.FT. & USES)
ESKIMO RENTAL HOUSING PROGRAM	1961 MATCHBOX (F)	0
ESKIMO RENTAL HOUSING PROGRAM	1963 RIGID FRAME	0
NORTHERN RENTAL HOUSING PROGRAM	1966 3 BR. PLAN 436-1 (G)	50 (c,d)
NORTHERN RENTAL HOUSING PROGRAM	1966 3 BR. PLAN 439-1	64 (d)
PUBLIC HOUSING SECTION 43*	1974 3 BR. WEBER (H)	80 (a)
PUBLIC HOUSING SECTION 43	1975 4 BR. WEBER	181 (a,d)
PUBLIC HOUSING SECTION 40	1986 3 BR. NWTHC DESIGN (I)	240 (a,b,c,d)
PUBLIC HOUSING SECTION 40	1986 4 BR. NWTHC DESIGN	280 (a,b,c,d,e)
PUBLIC HOUSING SECTION 40	1990 3 BR. NWTHC DESIGN (J)	326 (a,c,d)
PUBLIC HOUSING SECTION 40	1990 4 BR. NWTHC DESIGN	303 (a,b,d)

Legend of Ancillary Uses:
a - Utility Room
b - Mechanical Room
c - Storage (Indoor)
d - Cold Porch
e - Wind Porch

* Sections 43 & 40 of the National Housing Act

FIGURE 3
AVERAGE SHELTER COSTS vs AVERAGE INCOME
SELECT COMMUNITIES
1987



Source: N.W.T. Housing Corporation
and the N.W.T. Bureau of Statistics

FIGURE 4
NUCLEAR GROUP HOUSEHOLD INCOMES
KITIKMEOT DISTRICT

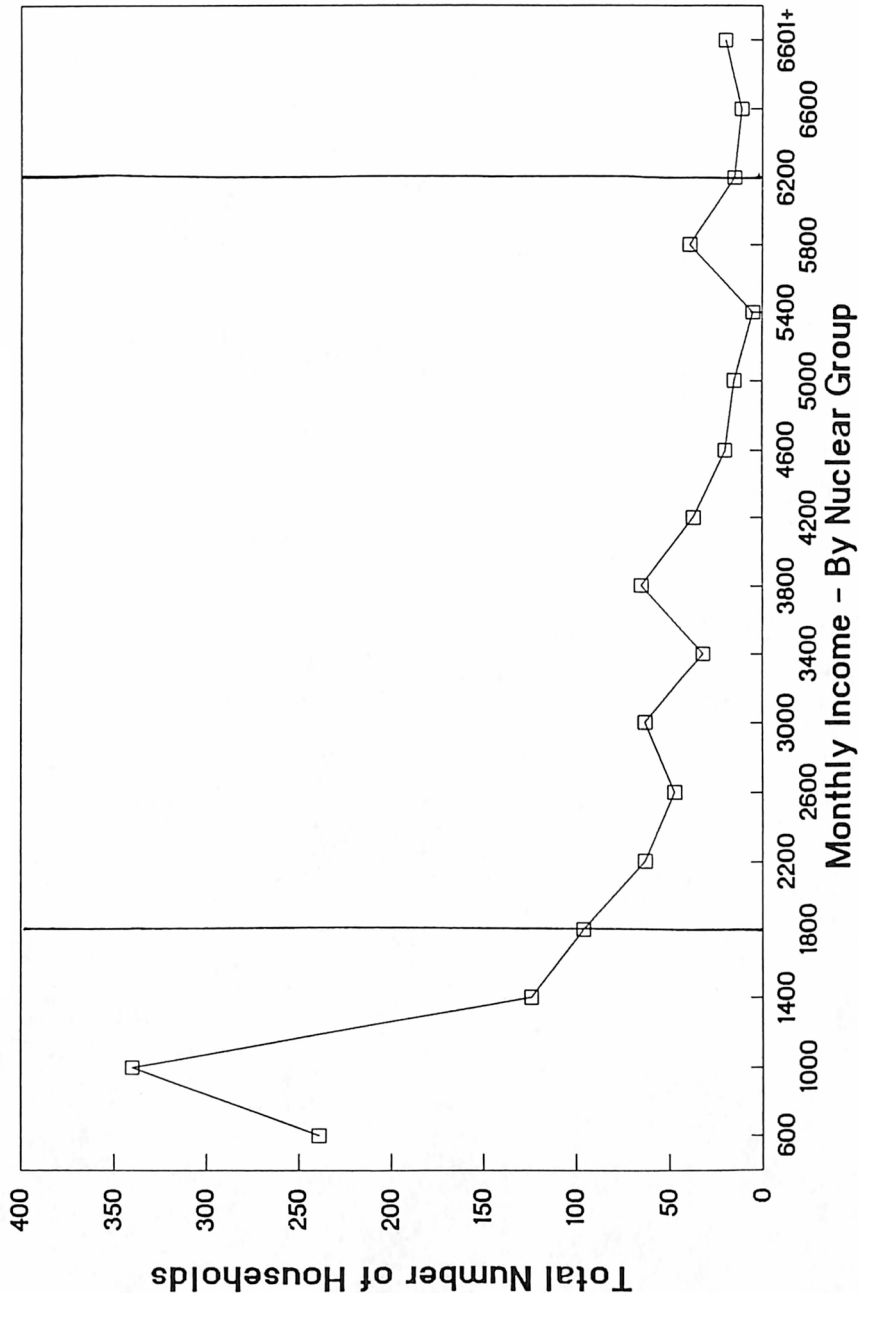


TABLE 1

COMPARISON OF AMENITIES
1967 - 1990

Amenities	1965			1990
	Canada	Mackenzie District (West)	Arctic District (East & Central)	N.W.T.
Running Water	92%	0	7%	78%
Flush Toilet	90%	0	1%	75%
Electricity	99%	19%	27%	100%
Central Heating	N/A	.3%	.5%	90%

Source: 1965 Needs Survey
1990 Survey of 4,800 Public Housing Units

TABLE 2
SHELTER COST CALCULATIONS
FOR SELECTED N.W.T. COMMUNITIES (1990)

	SHELTER COST COMPONENTS	FORT GOOD HOPE	TUKTOYAKTUK	FORT FRANKLIN	BAKER LAKE	POND INLET
(a)	House Cost (Material & Freight)	$74,200.00	$81,600.00	$98,500.00	$98,500.00	$99,200.00
(b)	Monthly Payments of (a) 25 yr. amortization @ 13.25% int.	831.04	953.12	936.32	1,103.20	1,111.04
(c)	Land Costs	33.33	3,500.00(*)	33.33	41.67	41.67
(d)	Taxes	18.94	18.94	18.94	21.34	21.84
(e)	Power	50.75	62.29	61.91	57.09	72.07
(f)	Heating	147.44	216.83	141.83	258.24	179.88
(g)	Water & Sewer	21.90	28.23	17.03	58.89	19.95
(h)	Insurance Premiums	51.53	37.57	54.42	44.53	64.15
(i)	Maintenance	107.44	107.44	107.44	107.44	107.44
(j)	Total Monthly Shelter Costs (sum of b to i inclusive)	1,262.37	1,424.42	1,371.22	1,692.40	1,618.04
(k)	Affordability Threshold/year	50,495.00	56,977.00	54,849.00	67,696.00	64.722.00

(*) Land costs for all communities except Tuktoyaktuk are quoted as monthly lease payments. In Tuktoyaktuk, where titled land is available, price quoted is the average purchase price of land for residential use. Land cost for Tuktoyaktuk is added to the house cost (a) and amortized over 25 years at 13.25% interest.

Environmental Factors Influencing Bird-Skin Clothing Production[1]

Jill Oakes
Department of Clothing and Textiles
University of Alberta

Abstract

Skin clothing enables hunters to spend extended periods of time outdoors throughout the arctic winter. The species used for clothing is influenced by environmental factors that vary from one region to the next. Birds were used by indigenous peoples from parts of Greenland, Canada, Alaska, and Siberia in the past, but today such use is extremely rare. Inuit living on the Belcher Islands, N.W.T., are the primary group discussed in this paper; other circumpolar groups are included for comparison.

The objective of this study is to identify and discuss environmental factors that influence regional variations in bird skin clothing production. Social-science methodology, i.e., participant-observation, content analysis, and ethnographic review was used to document bird skin selection. Findings indicate that regional variations in species selected for use reflect the availability of birds and caribou in each area. When constructing a parka, placement of skins is influenced by species, sex, and age of the skins used.

Introduction

People inhabiting northern regions have used skin clothing for centuries. This study focuses on the effect that species availability has on the use of birds in Inuit clothing. Birds were used in the past by indigenous peoples in parts of Greenland, Canada, Alaska, and Siberia. In Canada, Inuit living on the Belcher Islands in the Hudson Bay wore bird-skin clothing (Saladin d'Anglure, 1984). The objective of this paper is to identify and analyze bird-skin clothing made in the circumpolar region that I

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have located in museums and studied during field research. An in-depth analysis of parkas found on the Belcher Islands follows the census of parkas found in the circumpolar region. Factors influencing species selection are discussed. A comparison is made of bird-skin selection techniques used in the circumpolar region. The impact of bird-skin clothing production on bird populations is also discussed.

Historic Habitation of Belcher Islands

According to archaeological evidence, the Dorset culture existed on the Belcher Islands in Hudson Bay approximately 3000 years ago, while the Thule culture there dates back about 400 years (Saladin d'Anglure, 1984:478). The first European reference to this cluster of low-lying, rocky islands was made by Henry Hudson in 1610 (Flaherty, 1918:443). The absence of commercial whalers (because the waters were too shallow) protected islanders from contact with non-natives until traders arrived. The Hudson's Bay Company established trading posts at Umiujak (Richmond Gulf) in 1749 and Kuujjuaraapik (Great Whale River) in 1756, on the mainland, approximately 100 km from the Belcher Islands. Inuit seldom travelled to the mainland to trade, even though ice bridged the mainland and islands for about six weeks each winter. Winter travel to the mainland was limited because ice conditions changed quickly and without warning, making this crossing extremely dangerous (Twomey and Herrick, 1942:6). In the summer it took four days to get to the mainland by kayak, however, storms were ruthless and unpredictable, making the kayak crossing a rare event (Freeman, 1961:63). Thus, exchange of population and goods between the mainland and the Belcher Islands existed only in a restricted fashion.

The first contact with non-natives on the Belcher Islands was in 1914 with Flaherty (1918). A seasonal Hudson's Bay Company trading post was established in 1928. The first school was built in 1960 and the only permanent settlement, Sanikiluaq, was established shortly afterwards (Schwartz, 1976:115). The population grew from 150 people inhabiting all of the Belcher Islands in the early 19th Century (Saladin d'Anglure, 1984:480) to 272 in 1972 (Schwartz, 1976:115), and 450 in 1989 (Jamieson, pers. comm., 1990).

Flora and Fauna

The Belcher Islands cover about 5000 km^2. Lakes and surface ponds formed from water trapped above the permafrost are scattered over the islands, providing valuable nesting sites for a wide variety of waterfowl (Anatidae). About 1500 eider (*Somateria* spp.) nests are located within about one days travelling distance from Sanikiluaq (Reed, 1986:142). Inuit depended primarily on marine mammals for food (Schwartz, 1976:115-116; Freeman, 1967:157). In the 1880s caribou (*Rangifer tarandus*) were also plentiful, but later the herd disappeared (Flaherty, 1918:454). One explanation for this was that in 1897 a warming trend brought icing conditions making it impossible for caribou to break through the ice crust to feed (Jamieson, pers. comm., 1990).

Inuit depended largely on caribou skins for clothing. When more skins were needed they were acquired through trade with mainlanders. Balikci (1964:92) reports that the standard transaction was one sledge traded for 10 or 11 caribou skins. Perhaps sledges were used for trade because Inuit on the Belcher Islands had superior workmanship, or access to greater quantities of driftwood, ivory, and seal skin rope used to construct sledges. Trading with the mainland was difficult, and in any case, mainland caribou had also declined after the turn of the century. Seamstresses began using more polar bear (*Ursus maritimus*), fish, guillemot (*Cepphus grylle*), and common eider (*Somateria mollissima*) skins for clothing (Saladin d'Anglure, 1984:481). Eiders were preferred over other birds because they were plentiful, and had relatively large and strong skins which were exceptionally warm. Inuit developed a complex culture based on the eider that enabled them to remain on the Belcher Islands (Meeko, pers. comm., 1989). All parts of the carcass were eaten, including the internal organs and the clams found in eider's throats. Bones were used for needles and other small, specialized tools. For example, the radius (smaller of the two secondary wing bones) was used to pry the foot skin away from the foot bones. Many bird feet skins were tied around a waist thong and used to carry fresh water when hunting on the salt water for extended periods of time. Secondary wing feathers were used to create music by beating them like a Jew's Harp. Eider fat was mixed with down and used for candlelight. Skins were sewn together and used for blankets while sleeping and for traditional burial customs. In the early 1960s changes in settlement patterns, lifestyles, and the availability of trade goods reduced the need for bird-skin clothing.

Methods

Data presented in this paper were gathered using participant-observation methods during field investigations in Sanikiluaq, Belcher Islands, conducted in February 1989. Field data are supplemented with data collected from museum and archival sources. Five senior seamstresses provided information on each aspect of bird-skin clothing production. Younger seamstresses are unfamiliar with the skills needed to produce bird-skin clothing. I participated in preparing skins, selecting skins, constructing bird-skin clothing, and accompanying Inuit on hunts. Extensive notes, photographs, illustrations, and samples were used to record information. The most senior seamstresses made a tape recording of legends relating to the use of eiders and the significance of them to Inuit at Sanikiluaq.

A film was made of the production procedures and is available on video from the Inuit Cultural Institute in Arviat (Eskimo Point), Northwest Territories, the Communications Department, University of Manitoba, or by contacting the author. Bird-skin garments still owned and used by Inuit were included in this study. The search for locally owned bird skin garments was done in conjunction with skin-boot research conducted in 14 Alaskan communities during 1989, 2 Greenlandic communities during 1988, and 17 Canadian communities during 1983 to 1989. This field investigation located 12 parkas made from a variety of birds.

In addition to the field research, bird-skin clothing made by Inuit were studied in American, Canadian, and Greenlandic museums. Bird-skin clothing located in European museums were included when known. Thirty-four parkas were identified.

A literature search and archival search in the Public Archives of Canada, Hudson's Bay Archives, and Department of Indian and Northern Affairs Art Section provided visual and literary references to the utilization of bird skins in clothing. Illustrations, etchings, paintings, and photographs were studied.

Artifacts and references were studied to determine the species, age and sex of birds used in clothing. Spencer Sealy and Rick Riewe of the Zoology Department, University of Manitoba, identified bird species, sex, and approximate maturity of species used in parkas.

Regional Differences in Species Preference

All 32 museum, archival, and field specimens of parkas made on the Belcher Islands were made from common eiders (Figure 1). Parkas collected from Inukjuaq and Kuujjuraapik were also made from eiders.

Informants stated that sea birds (Alcidae), including loons (Gaviidae) and sea gulls (Larinae) were used occasionally. An analysis of materials used by other groups of circumpolar aborigines revealed distinctive regional variations (Table 1). Regional variations in styles also exist (Oakes, 1992).

Polar Inuit in Qaanaaq, Greenland, wore parkas made from dovekies (*Plautus alle alle*), while West Greenlanders used common eiders (Rosing, 1986:49). Inuit living near Hudson Strait, northern Quebec, used loon skins. Labrador Inuit and Ungava Inuit from the Ungava Bay area in northern Quebec used murres (*Uria* spp.), red-throated loons (*Gavia stellata*) (Saunders and McGrath, 1985:42), and "guillemot and sea pigeons" (Turner, 1894:209).

A wide variety of bird species was used in Alaska. Loon skins were used by Yuit on the Kuskokwim-Yukon Delta. Yuit from the St. Michael area near the Yukon-Kuskokwim Delta used tufted puffin (*Lunda cirhatapall*) skins (Turner, 1886:118). Siberian Yuit from St. Lawrence Island used cormorant (*Phalacrocorax* sp.) (Zerries, 1978:90), auklets (*Aethia cristatella*) (Gurvich, 1988:17), and a mixture of other sea birds. They also used crested auklet scalps to decorate intestine parkas. Kingeekuk (1987:25) states people living on the southern part of St. Lawrence Island wore eider and other types of duck skin clothing while people from the northeastern part of the island wore seagull skin parkas. Owls (*Nyctea*) and Falcons (*Falco*) were not used in the past in the St. Lawrence Island area. Ravens (*Corvus*) and jaegers (*Stercorarius*) were not used on St. Lawrence Island because they were considered "dirty". Hawks (*Buteo*) and birds with white plumage such as ptarmigan (*Lagopus lagopus*) and ivory gulls (*Pagophila*) were avoided because of superstitions (Fay and Cade, 1959:83). Ravens may also have been avoided for superstitious reasons. Emperor goose (*Philacte canagica*) skins were used by Bering Sea Eskimos near Cape Vancouver (Fitzhugh and Kaplan, 1982:55; Nelson, 1899:31). North of St. Lawrence Island, along the mainland coast near

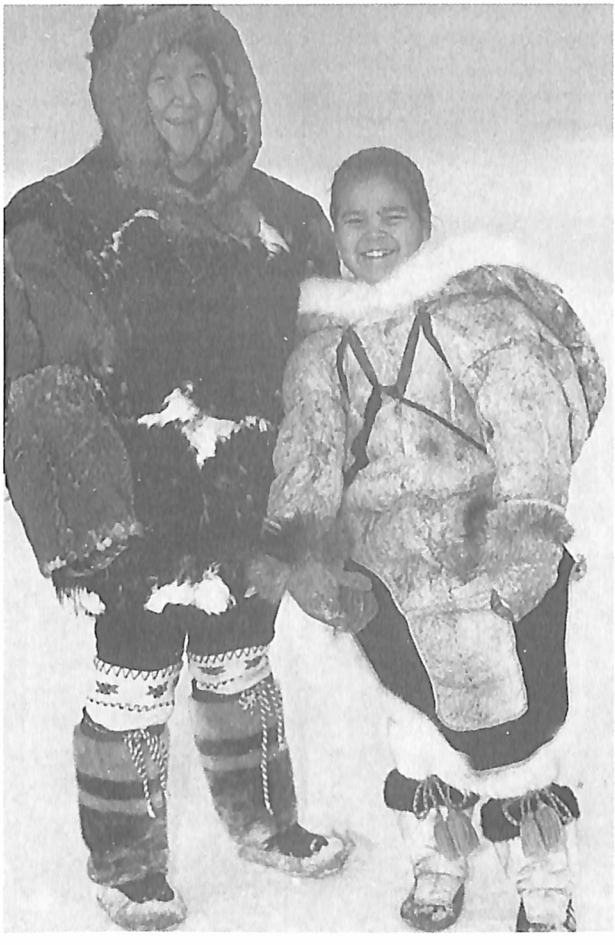

Figure 1. *Eider ducks are the preferred species for parkas on the Belcher Islands, N.W.T. They are worn with the feathers to the inside or outside. Jamie and Agatha Komaksuitiksak, 1989. Photo Credit Jill Oaks.*

Point Barrow, Murdoch (1883:110) observed that Inupiat used eider duck inner parkas on the rare occasion.

South of St. Lawrence Island, the Aleuts on the Aleutian Islands decorated their seal-intestine parkas (Hatt, 1969:124) and their special occasion dresses (Sarytschew, 1969:8) with feathers. They used parkas made from horned puffin (*Fratercula corniculata*) skins which were made water repellant by smearing them with fish roe and red dye. These parkas were worn with the feathers to the inside (Hatt, 1969:15; Hunt, 1975:43). Koniaq Eskimos on Kodiak Island used puffin skins (Collins,et.al., 1973:64) and cormorants (Collins,et.al., 1973:19; Chaussonnet, 1988:209). According to Ray (1981:53) the Chugach from the Alaskan coast south of Kodiak Island used eagle (*Haliaeetus leucocephalus*) skins, sometimes with the feathers plucked from the skins (Birket-Smith, 1953:65).

TABLE 1
COMPARISON BETWEEN LOCALITY AND SPECIES USED IN BIRD-SKIN PARKAS

Locality	Species used[b]
Greenland	
Qaanaaq	Murres, dovekies, thick-billed murre, and auks
Northern West Greenland	Eiders
Canada	
Hudson Strait, Quebec	Loons
Ungava Bay, Quebec	Murres, red-throated loons, guillemot, and sea pigeon
Kangiqsuagujjuaq, Quebec	Murres
Nain, Labrador	Murres, red-throated loons, mergansers, eiders, and divers
Igloolik, N.W.T.	Common eiders
Keewatin, N.W.T.	Common eiders
Sanikiluaq, N.W.T.	Common eiders, guillemot, and seagulls
Inukjuaq, Quebec	Common eiders
Kuujjurapik, Quebec	Common eiders
United States of America	
Kuskokwim-Yukon Delta, Alaska	Loons and puffins
St. Lawrence Island, Alaska	Cormorant, auklets, crested auklets, eiders, emperor geese, and seagulls
Nelson Island, Alaska	Steller's eider, spectacled eider, king eider, common eider, pacific loon, oldsquaw, and harlequin duck
Aleutian Islands, Alaska	Horned puffins, cormorants, and other sea birds
Kodiak Island, Alaska	Puffins, cormorants, andpelagic cormorant
Southern Alaskan coast	Eagles
Soviet Union	
Far East, U.S.S.R. (Inuit)	Common eider
Inland on Chukotka Peninsula (Chukchi)	No bird clothing referenced

[a]Garments such as hats and mitts made from bird skins were omitted in this study. Intensity of use is not considered in this table.

[b]Latin names of these species are provided in the text.

References to the use of bird-skin clothing by Inuit living in Siberia are rarely mentioned (Bogoras, 1913; Gurvich, 1988:17; Menovshchikov, 1964:842). Literature searched for information on Siberian Chukchi do not mention the use of bird skin clothing. In the central Canadian Arctic references to the utilization of bird skins in clothing are rare (Lyon, 1824:314;) or non-existent (Balikci, 1970; Boas, 1964). Lyon (1824:314) mentions that Inuit from Igloolik wore eider parkas, boots, and pants with the feathers turned inside. One example of an eider parka, allegedly from the Keewatin District, was collected by Bishop Marsh. As of 1985, however, seamstresses in Arviat (Eskimo Point), a community in the Keewatin, were unfamiliar with bird-skin garment production techniques.

Variations in plumage colours and skin size influences the designs created by seamstresses from different regions in similar ways. For example, a parka made from murres by Siberian Yuit on St. Lawrence Island, Alaska (Appassingok et. al., 1987:41) is similar in design to a parka made from murres by Inuit in Nain, Labrador. Seamstresses note subtle variations in the parka styles; however, the overall design is similar.

Joe Emikotailuk states that variations in skin size influenced parka size on the Belcher Islands (Nakashima and Murray, 1988:118). Eiders feeding in the southern portion of the islands had more food and were larger than those feeding in the northern area of the Belcher Islands. Seamstresses used the same number of skins regardless of where they were living on the islands. Consequently men observed that parkas made from the southern area were larger than those made in the northern area.

Influence of Age and Sex of Bird Species on Garment Construction

Numerous factors, including socio-cultural, spiritual, historical, economic, environmental, and ecological factors were considered when producing bird-skin clothing. These interdependent factors influence many decisions made by seamstresses throughout the bird skin production process. Distinctive decorative designs were created by using panels of white feathers next to black feathers. One reason for creating these patterns was to produce a garment that identified cultural affinity. Seamstresses could identify where someone was from by looking at the decorative designs created by using different plumage coloration on parkas from northern Quebec and the Belcher Islands (Meeko, pers. comm., 1989). Value systems differed from one area to the next. For example, on the Belcher Islands protection against the harsh weather was highly valued by Ungava Inuit; therefore, large bird skins (fewer seams which could become drafty) with a thick down layer were preferred. In contrast, in Toksook Bay, Alaska, Yuit valued the ability to create aesthetically pleasing, intricate symmetrical designs using small bird skins greater than the importance of producing a highly insulative garment.

Before sewing, Inuit from the Belcher Islands carefully selected and sorted eider skins using plumage coloration, down density and skin size as the primary criteria. Adult male belly skins were used for the front and back torso of the parka.

Adult male back sections were used for the centre panel of bonnets and men's hoods (Figure 2). The white feathers from the male back create a decorative contrast with the belly skins. Female skins and immature male skins were considered more flexible than adult male skins (Meeko, pers. comm., 1989). Female skins or immature male skins were used for the sleeves, underarm, and side-hood areas. Immature male or female skins were also used for children's clothing (Figure 3).

The seamstress' understanding of skin strength, insulative values and design are illustrated in a parka made by Therchuk in Toksook Bay, Alaska (Figure 4). This parka includes the following bird skins: 5 Pacific loons (*Gavia artica*), 4 male king eiders (*Somateria spectabilis*), 6 female eiders (king or common), 20 oldsquaws (*Clangula hyemalis*), 1 harlequin duck (*Histrionicus histrionicus*), 7 Steller's (*Polysticta stelleri*) or spectacled eider (*Lampronetta fischeri*) (Sealy, pers. comm.,1989; Riewe, pers. comm., 1989). It is trimmed with ringed seal (*Phoca hispida*) and arctic fox (*Alopex lagopus*). Oldsquaw skins were used for the torso area.

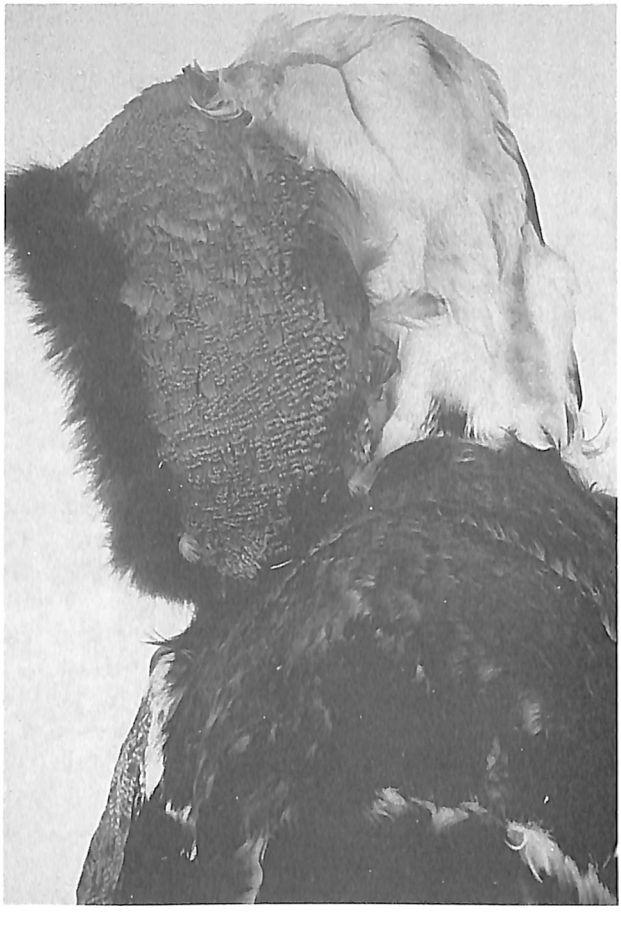

Figure 2. *The backs of male eider ducks are sewn together to make the back of parka hoods and bonnets. Copyright Royal Ontario Museum, HC2331, Flaherty Collection.*

Breeding male oldsquaws were incorporated into the centre rows; non-breeding males, and females, were placed along the parka sides. All breeding birds were harvested between late March and early June when they were not moulting.

Puddle ducks (Anatinae) are not as plentiful as diving ducks (Aythyinae) on Nelson Island, however, when more than one type was available, diving ducks were preferred as they have stronger skins than puddle ducks (Wilder, 1976:96; Therchik, pers. comm., 1989).

Impact of Clothing Production on Eider Populations

Historically, men hunted eiders with bolas on the Belcher Islands. Bolas are a collection of skin thongs with rocks secured to the end of each thong. In 1990 eiders are usually shot. On St. Lawrence Island, families divided the sea bird cliffs into zones, and family members collected birds from their zone by scooping the birds out of the air with a long-handled hoop net (Murie, 1936). Other ingenious ways

Figure 3. *Children wore parkas made from immature male and female eider skins as they are less bulky than adult male eider skins. Silatik Meeko and granddaughter, Louisa Cookie, Sanikiluaq, N.W.T., 1989. Photo Credit Zarah Chun.*

Figure 4. *Skin strength, insulative values, design and color are considered when combining skins from several species in one parka. Gertrude Therchik (seamstress) and grandson, Simon Abraham, Toksook Bay, Alaska, 1989. Photo Credit Rick Riewe.*

of collecting birds were used, such as hooking auklets and guillemots from their burrows, snaring geese and ducks, and corralling moulting emperor geese. These techniques are rarely used by contemporary hunters (Fay and Cade, 1959).

Skins are inspected before preparation and those riddled with holes are discarded. Eiders killed from around late October and throughout November are ideal for skin clothing. The down is thick, yearlings are near adult size, and birds have finished moulting at this time. Hunters bring the frozen eiders back to the community for the seamstresses to skin.

The estimated number of eiders killed on the Belcher Islands in 1982 was about 6000 birds, 2326 of them during October and November (Donaldson, 1984:171). These birds were harvested primarily for food. Some down was used for down filled clothing; the skins were not used for clothing. Hypothetically, this is enough birds to produce approximately 90 adult male parkas. In reality, there were only a couple of hunters who still occasionally wore a bird skin parka in 1982.

Using statistics from 1981 and 1982 it is possible to determine the impact of continued personal use of eider skin parkas on the eider duck colonies. The Inuit population for 1981 in Sanikiluaq was 383, including approximately 110 adult males and 110 adult females, 120 children aged 4 to 15, and 50 children under the age of four (N.W.T. Data Book, 1982:210). The average number of skins used in men's, women's, children's, and toddlers parkas is 25, 30, 14, and 8 eider skins, respectively. Parkas were replaced about every year, old skins were re-used until they were completely worn out. Skins that were still strong were re-used in parkas, weaker skins were used for items such as hand towels (Meeko, pers. comm., 1989). To provide each member of Sanikiluaq with one parka in 1981 approximately 2,750 skins would have been needed for 110 adult male parkas, 3,300 for women's parkas, 1,680 for children's parkas and about 400 skins for the young children's parkas. If everyone were still wearing bird-skin clothing in 1981, Inuit in Sanikiluaq would have needed about 8,130 eider skins just to produce one parka for each person. This is 3.5 times the harvest for the October and November period in 1982. With an increase in human population, the impact of bird skin clothing production on eider colonies would have been much greater, and perhaps unattainable. Since the early 1960s, Inuit have increasingly used winter fabrics and eider down, reducing the demand for eider skins. In contrast, in the 19th Century when the island population was about 150 (Saladin d'Anglure, 1984:480), approximately 3,389 eider skins were needed to make one parka for each person.

Conclusions

A century ago Ungava Inuit living on the Belcher Islands quickly switched to eider skins when caribou became unavailable. They required an animal species that would provide adequate insulation against the cold and wind. The use of bird skins in clothing and regional variations in bird species used for clothing is directly related to species and numbers available. Areas with high populations of caribou (Keewatin District) or reindeer rarely used bird skins in clothing because caribou skin is more durable, and less work to prepare and sew than bird skins. Inuit in regions without wild caribou, and areas where introduced herds of reindeer did not flourish, such as St. Lawrence, Nunivak, Kodiak, Aleutian and the Belcher Islands, were forced to use bird skins for clothing.

In those regions that depended on bird skins for warm winter clothing regional differences in bird species preferences were directly related to the available species, hunting conditions and physical properties of the species. Inuit in regions with high populations of cliff nesting seabirds, such as dovekies or murres, relied upon these birds for their clothing. Inuit inhabiting low lying areas with large populations of eiders, loons, geese and seagulls, such as the Belcher Islands or Nunivak Island, utilized eider ducks in preference to other birds. One reason for this is that eider ducks are available in October and November, when the down is the thickest and warmest. In contrast, seagulls, loons, and geese are plentiful during the spring and summer, when the down is less dense and plucked to line nests. They have migrated out of the area before their down is prime.

As the Inuit population increased, bird colonies located within easy travelling distance from the communities could have been hunted out if alternate materials for warm clothing were unavailable. Changing lifestyles which reduced the number of people spending extended periods of time outdoors during the winter has reduced the need for bird-skin clothing. Modern materials have become readily available, reducing the need to use bird skins for the majority of Inuit. Some Inuit have incorporated down with modern textiles to produce clothing that is ideally suited to their contemporary, less migratory lifestyle.

Bird-skin clothing production is extremely rare. Construction producers, including skin preparation, pattern development and sewing techniques need to be recorded before it is too late. In addition, the social and psychological factors influencing bird-skin clothing production need to be examined while the few elders with this knowledge are still alive.

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Environmental Glastnost and the Great White North: Ecological Impacts on Northern Peoples

Rick Riewe
Zoology Department
University of Manitoba

The Great White North

Canadians are well aware of our environmental problems. They constantly hear about the problems of deforestation, acid rain, the greenhouse effect, soil erosion, air and water pollution, etc. Yet many southerners still have the image of Canada's North as the Great White North, a vast untouched wilderness, with crystal clear waters, blue sky, virgin forests and tundra, and a profusion of wildlife.

Frequently, native peoples are not included in this southern concept of wilderness. All too often this image of the Great White North is promoted by tourism and outdoor equipment (as an example, glance through a Patagonia sportswear catalogue which promotes their products to the ecologically minded urban yuppie) industries who capitalize on the North as an outdoor playground for wealthy southerners. The extraction industries also promote a similar image—the North as a warehouse of natural resources free for the taking for those with the courage and strength to prevail against the adversities of the desolate wilderness.

In order to place the native peoples into proper perspective in the North, we must turn to the native land use studies which have been conducted since the 1970s. In 1973 the Supreme Court of Canada decided in the Calder case that the Federal Government had to settle aboriginal land claims. In preparation for the impending court cases many northern native groups began to document their land use (Asch 1976, Brice-Bennet, et. al. 1977, Brody 1986, Committee for Original Peoples Entitlement 1977, Duerden 198?, Freeman 1976, Riewe 1992, The Dene Nation 1984). Only since these studies were published have some southerners begun to realize that the Great White North is not a desolate wilderness or a play ground, but rather the homeland of the native peoples. The North is intimately known and intensively and extensively used by its inhabitants—it is in fact the "living room" and the "kitchen" of the northern aboriginal peoples (Riewe 1991a).

Perhaps we can also blame the conical projection map of Canada which we see hanging on the school and office walls for giving us this false impression of the North. The top of this map fades off into white nothingness, thus leading us to believe that the top of the world is still a pristine wilderness. In order to gain a more realistic understanding of Canada's North we must throw out the conical projection maps and replace them with polar projection maps of the northern hemisphere. By so doing we quickly realize that Canada and its northern neighbour, the Soviet Union, occupy about 75% of the circumpolar region. We also notice that the largest rivers in this region are in the Soviet Union and that they flow into the Arctic Ocean. The Yenisey, Lena and Ob rivers alone account for 70 percent of the river drainage into the Arctic Ocean (Twitchell 1991). This should be a warning that not all is well in the Great White North!

Environmental Glasnost

During the twentieth century, especially during the 1970s and 1980s, the Soviets have been attempting to catch up to the West by building massive industrial complexes and extracting their natural resources at an ever accelerating pace. The Soviet Ministries' sole objective, until Gorbachev's policy reforms of *glasnost* and *perestroyka* recently came into effect, was production at any price (Arikaynen 1991). In order to meet their production quotas the Ministries have stripped the resources from the land and in so doing have destroyed the fragile northern ecosystems and infringed upon the interests of the native populations.

The Cold War with the attendant Soviet secrecy has kept us naive regarding the health of our North and the world as a whole. Since the environmental *glasnost*, however, news has been streaming out that the Soviet Union's environment is in terrible condition. Scientists, journalists, politicians, and laymen alike have been reporting one Soviet disaster after another—the Chernobyl explosion, draining of the Aral Sea, pollution of Lake Bikal, etc. (Bond 1990, Lavrov 1990, Doklad 1989, Okhrana 1989).

Oil and Gas Developments

The Soviet North represents about 50% of the entire Soviet Union. In the recent past the economic, social, demographic, and ecological problems of the region have escalated. During the 1970s and 1980s the volume of industrial production increased in the Near North, where the major oil fields are located, by 5.9 times and in the Far North, where the gas fields are situated, by 26.2 times. By contrast the industrial production in the southern portion of Western Siberia increased only 70% (Lavrov 1990).

The oil and gas fields of Western Siberia are comparable to those of Saudi Arabia. This region provides 456 billion cubic metres of gas, which is two-thirds of the country's reserve (Lavrov 1990) and by the year 2000 Siberia could be producing over 140 million barrels of oil a year (Anonymous 1991).

Oil could be shipped to the U.S. at a fraction of the cost of importing it from the Middle East. The Soviets already have built an icebreaker fleet capable of

navigating the Northern Sea Route through the Arctic Ocean (Brigham 1991) and of delivering oil to the Aleyeska pipeline in Alaska. The oil fields in Siberia and the possible transport of these fossil fuels through the Arctic Ocean pose serious threats to northern peoples and the environment. The Canadian government's Public Review Panel on Safety and Marine Spills Response Capability agrees by stating that "the best way to minimize risks in the Arctic is to prohibit crude oil traffic completely" (Hazell 1990).

In 1989 a group of environmental scientists from North America were invited by the Soviets to view the massive Yamburg gas fields in Western Siberia (Bliss 1990). The scientists reported serious disturbances to vegetation covering the permafrost. In approximately 4000 km of helicopter flying, they saw no development areas without tracks away from roads, wellsites, and pipeline right-of-ways. In many places they noted deep ruts resulting from the melting of permafrost with a high ice content. In many places pipelines appeared to be floating at the surface in pools of melted permafrost. The poor construction techniques cause pipeline breaks that lead to major loss of gas and possible explosions. In one oil field it was reported that in 1985 there were 343 breaks in oil pipelines, resulting in the release of 1000 tonnes of oil, 600 tonnes of which reached the rivers, thus polluting them as well as destroying large areas of forest. Each year about 1,000,000 tonnes of oil are released from the broken pipelines in the Tyumen and Tomsk Oblasts.

There is concern in Moscow that the sedimentary geology and the permafrost with its high ice content which underlies the Yamal Peninsula might just melt away totally as a result of gas drilling. Ground water and oil withdrawals in Western Siberia have not been adequately compensated, and as a result there is fear that the reduced subterranean pressures may result in earthquakes around some major cities (Bond 1990).

Nuclear Weapons Testing

Since the 1950s the USSR has been testing their nuclear armaments in several localities throughout the Soviet Union including several Arctic sites. The Arctic islands of Novaya Zemlya have been one of the most important testing sites. Since 1958 there have been at least 121 tests on the islands. Prior to the Partial Test Ban Treaty in 1963, seventy percent of these tests were conducted above ground. Due to public protest over nuclear weapons testing in Central Asia, the Soviet Ministry of Defence announced in March 1990 that from now on all nuclear testing would be conducted on Novaya Zemlya in the Arctic Ocean (Lamb 1991).

The Soviets are beginning to admit that there are major problems associated with radiation poisoning as a result of their tests. The Soviet Nuclear Medicine Research Institute has found at Semipalatinsk, the major test site in the Central Asia, that over the years 10,000 of the 85,000 in the vicinity of the site had received radiation doses ranging from 2 to 160 rems. A safe annual dose is considered to be 0.5 rems (Lamb 1991).

Nuclear Power Stations

The Chernobyl disaster has put an even more ominous aspect on the situation. In April 1990, a Soviet Parliamentarian announced that it would require at least $380 billion over 10 years to deal with the accident and that almost 4 million people are living in contaminated areas (Hansen 1990). A Ukrainian Deputy, Yuriy Shcherbak, figures that the final cleanup bill will be a staggering $415 billion when the value of lost farmland and agricultural production and water supplies are included in the cost. This is equivalent to 90% of the Soviet Union's total budget for 1988 (Bond 1990).

There has been a flood of information during the last two years about the numbers of deaths from radiation sickness, elevated levels of spontaneous abortions, stillbirths, birth defects, etc. What is frightening about these figures is that they are only the tip of the iceberg. Many of the symptoms of radiation poisoning will not show up in a population until some 10 years after exposure (Bond 1990). Thus we will not know the true dimensions of the Chernobyl disaster until sometime in the next century!

As of last year 640,000 people had been removed from their homes. Rosalie Bertell, of the Toronto-based International Institute of Concern for Public Health, who visited Chernobyl reported that 1,000 pregnant women were evacuated; only 65 of them had "successful labour", of these 65 there were only 37 surviving children (Hansen 1990). It is little wonder that Soviet citizens are protesting in Red Square.

When I consider that there have been major accidents at nuclear reactors in North America, despite our stringent construction codes and environmental controls, I am deeply concerned about our Soviet neighbours. Given their notoriously poor construction techniques, the lack of responsibility and accountability given to individuals, and the absence of meaningful environmental controls, I am lead to believe that the nuclear power stations scattered across the Soviet Union are time boms waiting to explode

Forest Fires and the Greenhouse Effect

The Soviet Union has the greatest forest resources in the world—20% of the world's forest area, roughly 50% of the world's standing crop of coniferous timber, and about 25% of its total growing stock (Bond 1990). Fire is a natural factor in the perpetuation of these coniferous forests, as it is throughout the northern hemisphere. However, huge wild fires have been raging out of control in Siberia for decades in number and ferocity which are highly unnatural. Only recently have the Soviets attempted to quantify their losses due to these fires. In 1988 alone 24,400 fires consumed 792,400 ha of forest land and 225,400 hectares of non-forested land (Bond 1990). These fires are having enormous impacts not only upon the Ministry's abilities to meet its timber and pulp quotas, but more importantly upon the atmosphere. Soviet scientists believe that the fires are adding an astronomical load of CO_2 into the atmosphere which is enhancing the greenhouse effect (Ilyina pers.

com. 1990). They believe that the northern advance of the treeline by 500 km in Yakutia during the past 50 years is due to the greenhouse effect.

The greenhouse effect has been a hot topic over the past decade. Some climatologists contend that we are already under the influence of the predicted warming trend caused by the increased atmospheric concentration of infrared-absorbing gases. Other scientists are arguing that the meterological fluctuations which we are currently experiencing are within the normal range of historical variations. Most climatologists, however, agree that the warming trend is in sight but that even the most sophisticated computer models are still too crude to accurately predict the impacts.

Ken Hare (1988), one of Canada's leading climatologists, points out that the warming trend could have very dramatic impacts upon the Arctic. The impacts will likely include a thinning of the Arctic pack-ice and a reduction of the ice cover in the Arctic Archipelago. This would lead to improved navigation in the polar seas but it also would cause major alterations in the biogeography of the marine and terrestrial vegetation, fish, avifauna, and mammals. This in turn would impinge directly upon the Inuit who are still very dependent upon the Arctic wildlife for their sustenance and upon the sea ice as a travelling and hunting platform (Riewe 1991b). As the sea ice as well as the glaciers and ice caps begin to melt, there will naturally be an increase in sea level. This also would have a major impact upon the Arctic maritime peoples whose communities are scattered along the high-tide lines of the Arctic seas.

Impacts Upon the Soviet's Northern Indigenous Peoples

Due to workers and their families moving into the Far North, where they receive northern wage subsidies, the population has grown by almost six times in two decades (Lavrov 1990). This population explosion has created major social problems including a surplus population, the potential of ghost towns, and the assimilation of the aboriginal peoples. In these northern towns there are already tens of thousands of qualified but unemployed workers. For example in the entire Tyumen Oblast, the number of industrial workers in the gas fields is around 10,000 people. At the same time the population of only one city of gas workers, Novyy Urengoy, in 1987 reached the 100,000 mark. At present the Soviets are investing colossal amounts into the infrastructure of these northern developments, but the time will come when all these cities will be ghost towns. Despite the massive investments in these oil and gas developments the living conditions of the workers are deplorable. Only 3% of the settlements have gas, 5% have running water, and 0.1% have central heating. In the majority of the communities there is no plumbing or central water system (Lavrov 1990).

There are 28 distinct groups of aboriginal peoples inhabiting the Soviet North (Dahl 1990). These peoples are semi-nomadic reindeer herders, fishermen and trappers. In 1989 the size of their populations ranged from 190 (Oroks) to 382,000 (Yakuts), giving a total population of roughly 900,000. All of these native groups are in danger of assimilation due to the influx of southern workers. The share of

the indigenous population is falling sharply in all the northern autonomous okrugs and presently comprises from only 3% to 23% (Lavrov 1990). Last summer, I found to my amazement, that a group of Chukchi dancers who where entertaining Chukchi reindeer herders on the tundra in the Far East, were in fact, mostly Russians, Ukrainians, and Latvians. The aboriginal peoples are extremely concerned about their cultural survival.

Now that they have lost their land to the northern developments, they are loosing their culture, and suffering from unemployment, poverty and alienation (Dahl 1990). Tuberculosis, which is associated with poor housing conditions, is one of the most prevalent diseases in the Soviet North. The average life expectancy of the indigenous peoples has decreased from 61 to 47 years within the last decade.

The housing standards in the Soviet North is inferior to the rest of the country. Last summer Chukchi and Even reindeer herders in the Far East, spoke freely to me about their economy and living conditions. The herders earn 500 -2,000 rubles per year (at $6.5 rubles/US $, the Intourist exchange rate at the time, that is equivalent to $77-307 US per year). They are charged 13 kopeks/m^2 /month (2.4 cents/m^2) and officially are allowed 7 m^2 (735 sq. ft. or a room about 8' x 9' for approximately 15 cents a month) of living space per person.

According to Dahl (1990) there is a severe housing shortage, and on average there is only 1.5 to 7 m^2 available per person, which as a rule, is in shacks. The indigenous peoples complain that in Chukotka, at Taymir, Evenkeya, and other places several families are forced to live together in one room in order not to freeze. In the Yamal area many of the Nenets reindeer herders do not have houses and some do not even have their own chum (reindeer skin tent). In this area the government does not build housing for the herders but it does provide newcomers with temporary quarters in apartments with little or no waiting time.

One of the concerns of Soviet scientists is the rapid disappearance of useable land for the aboriginal peoples and their reindeer herds (Bliss 1990). Six million hectares of reindeer range lands have already been destroyed by northern developments (Lavrov 1990).

Environmental Implication for Canada

In the past twenty years Canadian scientists have detected an increasing variety of toxic materials, including pesticides, herbicides, heavy metals, industrial chemicals and radioactive fallout in our Great White North. These pollutants have been found on the snow surface, in the waters and atmosphere, and in the Arctic food chains (Twitchell 1991).

Much of the worst environmental degradation in the Soviet Union has been associated with agriculture. Poor soil and water management has led to massive problems of erosion, salinization of soils, desertification, flooding, and the general deterioration of soil quality. In order to compensate for the reduced productivity of the soils the Soviets have turned to excessive use of fertilizers, herbicides and pesticides (DeBardeleben 1990). These chemicals and soil particles have been carried into the north by the rivers, ocean currents and atmospheric circulation.

A couple of years ago, scientists from the Freshwater Institute in Winnipeg discovered that the snow cover in the Keewatin had a dusting of soil particles which covered a territory roughly the size of New Brunswick. After analyzing the chemical composition of the soil they discovered that it had originated in Mongolia and been carried to Canada by the air currents.

In the recent past the Arctic air was crystal clear, now a veil of smog called arctic haze occurs in the North during the winter. From December to April the air masses carry pollutants including dioxins, from incinerators, pulp and paper mills, metal recycling plants and other industries in Europe and the Soviet Union to the Canadian Arctic (Twitchell 1991).

The toxic substances which have been entering the Arctic are found elsewhere in the biosphere, and often in much higher concentrations. However, these toxic wastes may have much more negative impacts in the Arctic than further south, because of the extensive ice cover, the intense cold, the reduced sunlight, and the short food chains.

These pollutants have been circulating in the Arctic food webs and concentrating in the marine mammals. Presently there is very little known about these contaminants in the Arctic, but grave concerns have been raised regarding the implications for native peoples. For example, in 1988 there was a study which found that the level of PCBs in human milk fat was five times higher in samples from Inuit women in northern Quebec than from women further south (Twitchell 1991). The higher levels were linked to the Inuit's dietary intake of marine mammals. At this time we do not yet know the long term implications of exposure to low concentrations of toxic materials in country foods to human health.

As the Soviets are beginning to calculate the costs of cleaning up their ecological disasters they are finding that the costs are absolutely staggering. North American Scientists (Bond 1990) understand that the Soviets will probably react to their environmental disasters as we do in North America. Anywhere in North America where jobs are threatened and people are out of work, the choice has always been for jobs over the environment. As the Soviet economic situation deteriorates and the—availability of foods and consumer goods worsens, the peoples will probably try to solve their immediate problems rather than the long run environmental problems.

Scientists at the Academy of Science in Moscow have predicted an extremely dim future for the Arctic (Ilyina pers. comm. 1990). They fear that the Soviet Union is dumping such astronomical amounts of industrial and nuclear wastes into the atmosphere and into the rivers draining into the Arctic ocean that the Polar Ice Cap will melt within 20 years. Once this happens, they predict, the northern hemisphere will be enveloped by an ominous cloud cover which rains toxic and radioactive wastes upon us. We can only pray that this is mere Soviet hyperbole! Even if this is wild exaggeration, it is only prudent that we take heed and acknowledge that a witch's brew of grim proportions is accumulating in the Arctic Ocean. Canada, as one of the major players in the Arctic, must take advantage of *glasnost* and

perestroyka and work with the Soviet Union and the other polar nations to halt the demise of the North and its inhabitants.

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